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Original Study

Animal-Assisted Interventions in Dutch Nursing Homes: A Survey

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A B S T R A C T

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Objectives: Animal-assisted interventions (AAI) have become more and more popular in nursing homes in the past decade. Various initiatives for using animals in nursing homes have been developed over the years (eg, animal visiting programs, residential companion animals, petting zoos) and, on the whole, the number of nursing homes that refuse animals on their premises has declined. In this survey, we aimed to determine how many Dutch nursing homes offer AAIs, what type of interventions are used, and with what aim. We also focus on the use of underlying health, hygiene, and (animal) safety protocols.

Methods: Using an online Dutch nursing home database, we invited all listed (457) nursing home organizations in the Netherlands (encompassing a total of 804 nursing home locations) to participate in our digital survey, powered by SurveyMonkey. The survey consisted of a total of 45 questions, divided into general questions about the use of animals in interventions; the targeted client population(s); and specific questions about goals, guidelines, and protocols. The results were analyzed with SPSS Statistics.

Results: In the end, 244 surveys, representing 165 organizations, were returned: 125 nursing homes used AAI in one way or another, 40 did not. Nursing homes that did not offer AAI cited allergy and hygiene concerns as the most important reasons. Most nursing homes offering AAI used visiting animals, mostly dogs (108) or rabbits (76). A smaller number of nursing homes had resident animals, either living on the ward or in a meadow outside.

Almost all programs involved animal-assisted activities with a recreational purpose; none of the participating nursing homes provided animal assisted therapy with therapeutic goals. Psychogeriatric patients were most frequently invited to participate. A total of 88 nursing homes used alternatives when animals were not an option or not available. The most popular alternative was the use of stuffed animals (83) followed by FurReal Friends robotic toys (14). The sophisticated robot seal Paro was used in 7 nursing homes.

A large percentage (80%) of nursing homes that worked with animals did not have AAI-specific health protocols or animal welfare and safety protocols underlying the animal activities or specific selection criteria for the selection of suitable animals.

Conclusion: Most of the participating Dutch nursing homes offer AAI in recreational programs (animal-assisted activities) for psychogeriatric clients (using visiting animals, especially dogs). Most nursing homes do not have specific AAI protocols for animal welfare, hygiene, and safety during animal activities, nor do they employ specific selection criteria for participating animals and their handlers.

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In the past 50 years, animal-assisted interventions (AAIs) have risen from sporadic to mainstream in diverse settings, including hospitals, psychiatric care, schools and prisons.¹ The spectrum of AAIs practiced in these settings includes animal-assisted activities (AAAs, with recreational goals), animal-assisted therapy (AAT, with therapeutic goals), and animal-assisted education (AAE, with educational goals). Nursing homes are equally well suited for AAI programs, both from a client and an organizational perspective. Improving quality of life, for example, is

one of the recurring challenges in elderly care management, especially when combined with complex debilitating illnesses and a restricted financial budget.² The past 2 decades, therefore, have seen an exponential increase in the incorporation of complementary interventions in nursing homes, especially in dementia care, including AAI.^{3,4} Dog visitation programs, in particular, are very popular and various organizations exist worldwide today to assist nursing homes in starting and maintaining such programs.⁵ Usually these programs are set up for recreational purposes, essentially meaning they provide pleasant human-animal contact opportunities with sometimes additional benefits, like stimulating social contact with other clients or volunteers. Many articles have been written about the benefits of the human-animal bond, both in sickness and in health.⁶ Friedmann et al,^{7,8} for example, showed that petting dogs can positively influence blood pressure and the presence of a friendly dog reduces cardiovascular responses to a stressor like public speaking.

Researchers are more and more focused on surpassing the anecdotal evidence of AAI effects via controlled trials in diverse settings, including nursing homes, and several reviews on this subject have been published in the past decade.⁹

In keeping with the rising popularity of AAI, however, concerns about professionalism, hygiene, zoonoses, safety, and animal welfare have been raised. Definitions and guidelines for AAI have, albeit slowly, been developed in the past decade, culminating in the 2014 International Association of Human-Animal Interaction Organizations (IAHAIO) white paper on this subject.¹⁰

Following the international trend, AAI has become equally popular in the Netherlands. Various initiatives for using animals in Dutch nursing homes have developed over the years (eg, animal visiting programs, residential companion animals, petting zoos). Several organizations that provide pet-visitation programs for nursing homes exist, as well as training programs for volunteers, who want to participate in AAI programs with their animal.¹¹ The Van Hall Larenstein University of Applied Sciences in Leeuwarden offers an “animals in health care” bachelor as part of an animal-management study program.¹² In 2013, the first European professorate in anthrozoology was instated at the Open University in Heerlen, focusing on various research questions in the AAI field and collaborating in the recently established Institute for Anthrozoology, IVA.^{13,14} Both theory and practice are thus well represented in the Netherlands, but it is unclear whether they actually meet each other where it matters most, that is, at the human-animal interactional level, and consequently lead to best practices based on the available scientific theory.

In this article, we describe an AAI-oriented survey conducted among Dutch nursing homes, with the purpose to determine how many Dutch nursing homes use animals in one way or another and to categorize the various practices of AAI in those nursing homes (ie, AAA or AAT, targeted client population, involved staff). Additionally we aimed to analyze what criteria are important for Dutch nursing home staff in deciding for or against the use of animals and if Dutch nursing home staff adheres to specific guidelines during AAI sessions.

Methods

Using the online Dutch nursing home database KiesBeter,¹⁵ a nursing home comparison and review Web site, we invited all listed (457) nursing home organizations in the Netherlands (encompassing a total of 804 nursing home locations) to participate in a digital survey. We used the main contact e-mail address as provided in the database to send an invitation, with accompanying information detailing the goals of the survey and a digital link to the online questionnaire, powered by SurveyMonkey, a digital surveying tool.¹⁶ We asked the main addressee to forward the survey to all nursing home locations belonging to the organization, potentially creating a total of 804 respondents.

The online survey consisted of 45 questions, mostly single or multiple-choice, and focused on the use of animals in general (ie, animal specifics, type of interventions, selection criteria, alternatives, reasons not to use animals), the targeted client population(s) (eg, dementia, somatic illness, psychiatric illness, hospice care), participant selection criteria, and the intended intervention goals. We were also interested in the use of specific (AAI) guidelines and protocols while managing AAI programs and the value respondents adhere to different aspects of those guidelines.

All results were anonymized and analyzed with descriptive statistical tests using SPSS Statistics (IBM SPSS Statistics, IBM Corporation, Chicago, IL).

Results

A total of 244 surveys were returned, a response rate of 30%. When corrected for incomplete entries (ie, surveys with more than 50% left blank), the resulting 219 respondents represented 165 nursing homes, 21% of all nursing home locations in the Netherlands. Respondents were mostly working as part of the recreational staff, with nursing and management staff in second and third place (Figure 1).

A number of nursing homes (28) asked multiple employees to participate, creating 54 duplicate entries for those nursing homes in total. In case of discordant responses in those duplicate entries, we used the entry of the respondent most likely to know the actual situation (eg, preferring entries by recreational staff of nursing home wards over, for example, managers). When corrected for those duplicate entries, the results show that 125 nursing homes (76%) did use AAI in one way or another and 40 did not. According to the respondents, dogs were used most frequently, followed by rabbits and birds (Figure 2). Less mentioned animals (fewer than 10 mentions) are clustered in the “other” category and include rats, pigs, horses, donkeys, cows, and even a llama and an iguana.

According to the respondents, AAI sessions typically involved 1 to 4 animals (85 mentions). When asked about the animal’s origin or ownership, 13 nursing homes mentioned using only resident animals (either in the house or on a meadow outside), 50 used only visiting animals, and 37 nursing homes used both. The remaining 25 nursing homes did not specify the origin or ownership of the animals.

The 40 nursing homes that did not use animals cited several reasons that could be divided into 6 distinct categories:

- hygiene concerns (15 mentions)
- allergy concerns (10 mentions)
- animal welfare cannot be guaranteed (11 mentions)
- fear of legal liability (2 mentions)
- perceived fear of animals among clients (3 mentions)
- no qualified personnel available (6 mentions)

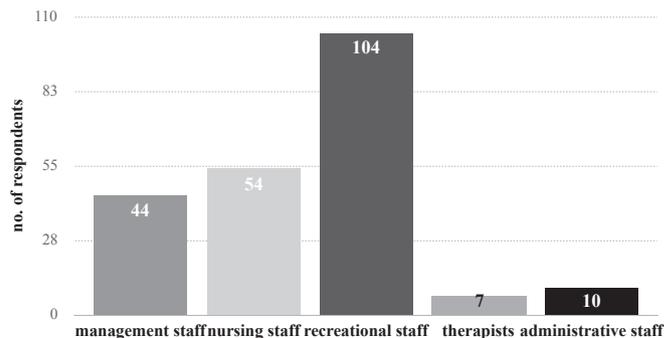


Fig. 1. Number of respondents per function profile (n = 219 respondents).

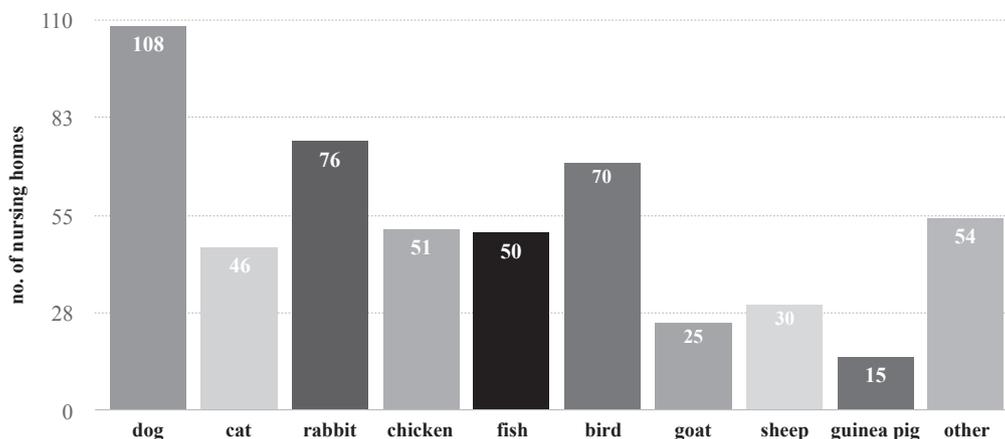


Fig. 2. Frequency per type of animal used in responding Dutch nursing homes (multiple choice, n = 125). Other (less than 10 mentions): llama, iguana, cow, horse, rat, donkey, duck, goose, piglet, potbellied pig.

Of the nursing homes not using animals, 13 did not use alternatives for animals either. Of all 165 nursing homes that are represented in the survey, 88 nursing homes at times used alternatives, such as toys or robots, instead of animals, whereas 36 nursing homes did not. Unfortunately, for 42 nursing homes, this question was not answered. Alternatives used most frequently were stuffed (plush) animals (Figure 3). The well-known artificial interactive therapeutic robot seal Paro was mentioned for 7 nursing homes. Among alternatives mentioned in the category “other” were dolls, animal images or videos, and even taxidermy (the mounting or stuffing of dead animals).

Looking at the specific details of AAI sessions in Dutch nursing homes, visiting animal programs (ie, volunteers/handlers visit the nursing home with their animals) were most common (83 mentions), very closely followed by activities focused on clients participating in the caring for resident animals (82), with several nursing homes offering both. A total of 107 respondents cited stroking and cuddling the animals as the most important activity during the programs, followed by playing (60 mentions), walking (56), feeding (55), and grooming (50). Most nursing homes organized AAI as group activities (93), with most groups consisting of 4 or more clients. Individual sessions, however, were also mentioned by 43 nursing homes.

According to the respondents, AAI was offered for the entire range of nursing home client profiles (ie, psychogeriatric/dementia, somatic/physical illness, psychiatric), but psychogeriatric clients were most frequently invited to participate (mentioned by 120 of respondents) with somatic clients in second place (71 mentions, Figure 4). None of the nursing homes offered specific AAT programs. Clients not participating (or exposed) were most often excluded because of

allergies, fear of animals, or no (expressed) interest. AAI frequencies of once a week (26 mentions) and once a month (27 mentions) seemed to be equally popular, as well as the undefined response of “when needed” (25 mentions). In most nursing homes, sessions lasted between 30 and 60 minutes (33 mentions) and took place in a separate designated space (not on the client’s ward, either outside or inside).

We also listed the personnel involved in the animal programs and, as shown in Figure 5, recreational staff, volunteers, and animal handlers were most frequently involved. Handlers were seen by most respondents as responsible for the animal (81 mentions) and recreational or nursing staff was seen as responsible for the client (92 mentions). A total of 29 respondents indicated that the animal handlers or volunteers were also responsible for the participating clients. When no handler was available (eg, for resident animals), 44 respondents answered that the recreational staff was responsible for animal welfare. Thirteen respondents noted that the division of responsibility between participating staff and other personnel was unclear.

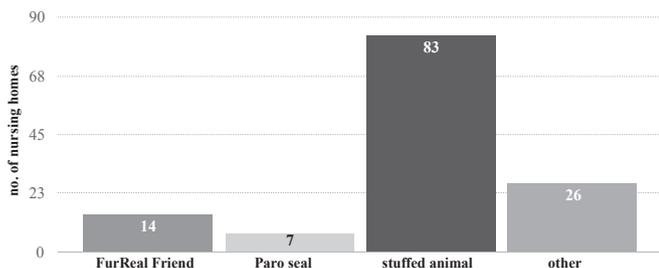


Fig. 3. Frequency per type of alternative for an animal used in responding Dutch nursing homes (multiple choice, n = 165). Other (less than 7 mentions): animal hand-dolls, baby dolls, animal images and videos, taxidermy, sensory stimulation via “snoezelen.”

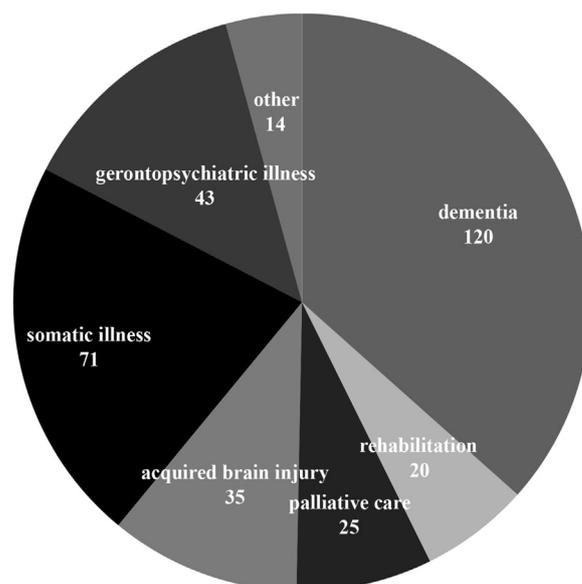


Fig. 4. Number of responding Dutch nursing homes using animal-assisted activities per medical category of participants (n = 125, multiple choice). Other: early-onset dementia, Korsakov, retirement home clients, day care.

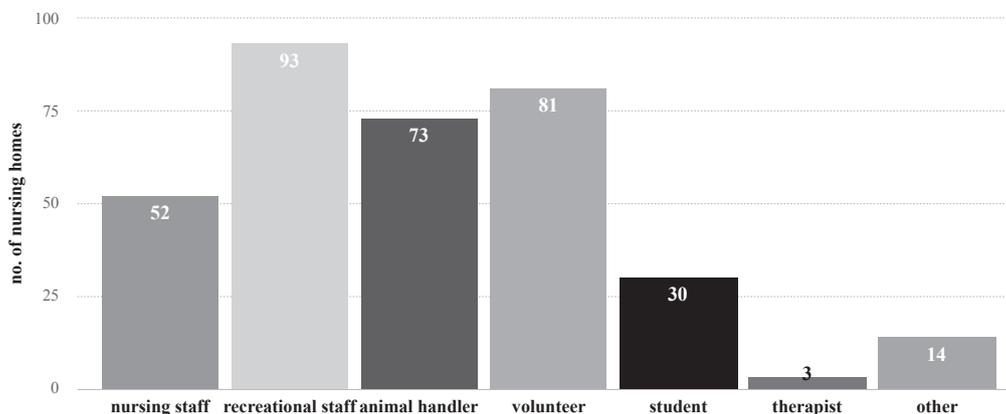


Fig. 5. Personnel involved in AAIs in responding Dutch nursing homes (n = 125, multiple choice). Other (less than 3 mentions): client, family, nursing home hostess, child day care personnel (when combined activity with a child day care), farm employee, management staff, dog training center personnel.

The final part of the survey focused on AAI guidelines and protocols regarding selection criteria, hygiene, welfare of clients, and welfare of animals. A total of 73 respondents skipped this entire part of the survey for unknown reasons. The remaining 146 respondents mentioned the following selection criteria for the animals involved (listed according to mentioned most to least frequently):

- the animal has to be healthy (not specified) (42 mentions)
- the animal has to be free of zoonoses (21 mentions)
- the animal has to be vaccinated (15 mentions)
- the animal has to be clean (not specified) (14 mentions)
- the animal has to be free of worms and fleas (10 mentions)
- the animal has to be periodically checked by a veterinarian (7 mentions)

Thirteen respondents answered they did not know what selection criteria were used and 15 respondents mentioned the health status of the animal is the sole responsibility of the animal handler.

Respondents were also asked to list the specific measures taken during sessions to ensure animal welfare. Only 99 respondents answered this question: 20 of them said they did not know what measures were used, the remaining 79 respondents mentioned 2 measures that were seen to be of equal importance. The first one indicated to be important is the presence of the animal handler during sessions. The second safety measure cited as most relevant was that the animal had to be provided with food, water, and a place to retreat during the sessions.

Respondents listed several hypothetical reasons for sessions to be aborted. The reasons mentioned most involved client welfare and safety and animal welfare and safety. A large number of respondents (86) stated individual clients were prematurely excluded from sessions when they exhibited symptoms of an allergy; showed signs of fear, unhappiness, fatigue, or agitation; or when they asked to leave or showed signs of wanting to leave. A smaller number of respondents (25) mentioned they prematurely stop sessions when there is no discernible response in the group or individual client, based on observations and not supported by specific assessment tools.

A total of 109 respondents indicated that some sessions were also aborted when the animals showed signs of stress or fatigue or acted in an unacceptable way (eg, growling, biting). Another reason for ending sessions was situations in which the safety of the animals could not be guaranteed due to specific circumstances (eg, sudden agitation or aggression in psychogeriatric clients).

All respondents of the nursing homes that used animals (n = 125) were subsequently asked about the availability of specific protocols related to AAI or hygiene and safety in general. As can be seen in the pie chart (Figure 6), according to the respondents, 42 nursing homes

have general hygiene protocols (A) that are also used during AAI sessions, 32 have no protocols related to AAI (J), 23 have an incident registration system (I), and 23 have animal safety protocols (F). Least-mentioned protocols involve specific hygiene (zoonosis, B) and animal management during sessions (C).

Finally, we asked respondents to rate the 7 statements listed in Table 1 regarding AAI safety according to perceived importance. A total of 84 respondents finished this task. All statements were perceived to be of equal importance, with the exception of statement 4, and, to a lesser degree, statement 3.

Discussion

The implementation of AAIs, especially AAAs, in nursing homes has gained more and more momentum in the past decades.¹⁷ The results of this survey underline this observation: 76% of participating Dutch nursing homes use animals in one way or another. There is very little comparable research available. Janssen and Bakker¹⁸ looked at animals in Dutch psychiatric care settings in 2007 and found that 22 (47%) of 46 Dutch psychiatric institutions allow visiting animals on the premises and 24 (54%) of 44 have resident animals on the wards. Interestingly, of those institutions that allow visiting or resident animals, 55% specifically provide only long-term geriatric psychiatric care, whereas in contrast in 2007 none of the child psychiatry settings allowed visiting or resident animals. The authors offer no explanation for this difference. In our survey, 76% of nursing homes used animals in one way or another. Compared with the numbers of Janssen and

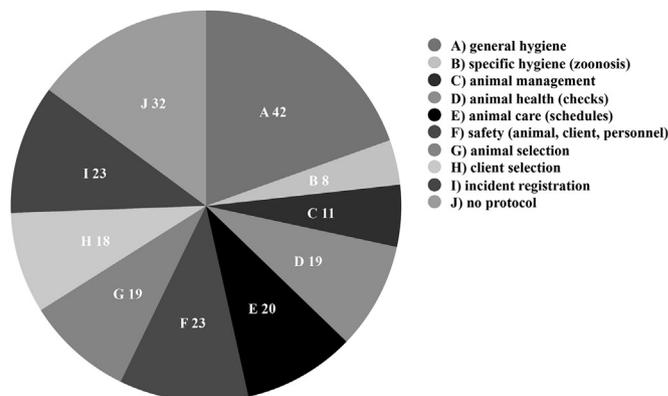


Fig. 6. Availability of protocols related to AAIs, displayed by number of responding Dutch nursing homes that mention availability of such protocol (n = 125).

Table 1

Mean Rating (Range 1–10, Least to Most Important) of Safety Statements as Perceived by Respondents (n = 84)

Statement	μ (SD)
1. Clients' hands are washed after touching the animals.	8.14 (1.64)
2. Designated rooms are off-limits for the animals, for example kitchen and sanitary units.	8.29 (1.85)
3. The room used for the activity is cleaned after every session.	7.26 (2.29)
4. The animal handler has successfully finished an AAI training.	5.18 (2.85)*
5. The person responsible for the animal takes animal behavior (eg, stress signals) into account and acts accordingly.	8.65 (1.87)
6. The person responsible for the animal takes care to minimize risks of transmitting zoonotic diseases and other safety hazards.	8.70 (1.69)
7. All animals are vaccinated and treated for parasites.	8.63 (1.88)

*Significant difference.

Bakker,¹⁸ a smaller percentage of nursing homes (25%) had resident animals (either inside or outside in a meadow), whereas a similar percentage (50%) allowed visiting animals.

Internationally, Darrah¹⁹ investigated the occurrence of AAIs in nursing facilities in California and South Dakota in 1996 and found that 24 (73%) of 33 nursing homes used AAIs (termed animal facilitated therapy [AFT] in the article) in California and 8 (36%) of 22 in South Dakota. It should be noted that the participating California nursing facilities were preselected on the criterion that they offered AFT as an activity, whereas the South Dakota sample was selected from all nursing homes in the region (with or without pets). It is quite unclear why the authors chose this approach, but it does explain the discrepancy in numbers between the regions. Only the South Dakota results can, therefore, be used in comparison with our results, with the major limitation that the Darrah¹⁹ survey took place nearly 20 years ago and consequently is dated. A PubMed search did not yield any other studies that specifically surveyed the use of AAIs in (a sample of) nursing homes within a country or even between countries. Our study therefore seems quite unique in this respect.

Dogs are used most in AAI programs in Dutch nursing homes, mostly in visiting animal programs. The use of dogs in (rehabilitative) medicine and psychology is well documented in both popular media and scientific publications,⁹ and dogs in general are popular pets. A periodic report on domestic animals in the Netherlands by the ministry of economic affairs and agriculture estimates a total of 1.5 million dogs in the Netherlands in 2011.²⁰ Cats are even more popular pets in Dutch households (2.9 million), although this popularity is not reflected in the appearance of cats in Dutch nursing homes. Cats are used less frequently than dogs and also less frequently than other animals, such as rabbits, birds, and fish. In general, cats are seen as more solitary and less trainable than dogs and thus less suited for (specific) AAI programs.^{21,22} Successful resident and visiting cat programs do exist, however.²³ The range of animals is quite broad, with even the occasional mention of exotic animals. It seems that animal (and handler) availability and personal preferences ultimately are the most important factors in the choice of animal used in AAI programs in Dutch nursing homes.

When animals are not available or the use of animals is not possible, approximately 50% of nursing homes use alternatives. Interestingly, the highly advanced robot seal Paro is used in only 7 nursing homes, even though research on the positive effects of Paro in dementia care is available.²⁴ The high price tag of Paro seems to be an important factor in not using the robot. Nursing homes instead look for cheaper alternatives, like FurReal Friends (less sophisticated toy animal robots that are available in most toy stores) or regular stuffed animals.

All Dutch nursing homes that responded to the survey, use animals in AAA programs, either in group sessions or individual. Visiting animal programs are more common than resident animals, most likely

because of the additional responsibilities involved in caring for a resident animal. Therapy programs with the assistance of animals, as defined by animal activities with specific therapeutic goals and under the guidance of a therapist, do not exist in the Dutch nursing homes participating in our survey. Some respondents think they offer therapy programs, but when asked in detail, there are no therapists involved, nor is there a therapy plan with specific goals. Even the few therapists who answered the questionnaire mention only AAAs and no therapeutic programs.

The target population of AAI programs is diverse, but the participation of clients with dementia is mentioned most. This coincides with an increase in scientific studies into the effect of AAI in dementia care²⁵ and the increasing awareness in the medical field that complementary interventions are needed to cope with the challenges this deteriorating illness brings. Neuropsychiatric symptoms, such as (verbal and nonverbal) agitation, aggression, depression, and apathy, are very difficult to manage and more and more research is focused on using complementary interventions (eg, music therapy, snoezelen (sensory stimulation), medical clowns, and physical activities) to alleviate these symptoms.²⁶ AAI programs fit neatly into this category.

Respondents are unanimous in the exclusion criteria for clients: the existence of allergies, fear of animals, and no interest in animals, are the 3, very obvious, reasons not to include clients. No response to the activities is also mentioned as a reason to exclude clients, yet specific assessment tools for measuring response are not used.

A small percentage of Dutch nursing homes (24%) does not allow animals on the premises for specific reasons, mostly out of hygiene and allergy concerns, but the lack of qualified personnel or concerns for animal welfare are also mentioned. Most of these concerns could theoretically be addressed by education and training. Several studies have shown that hygiene concerns are unfounded when the proper precautionary measures are used²⁷ and various guidelines and organizations exist to aid a nursing home in the implementation of AAI programs and the training of volunteers.⁵ Unfortunately, respondents of nursing homes that do use animals seem to be equally unaware of these existing training programs and guidelines. Specific protocols for AAI programs detailing important information on the selection of animals, the selection of volunteers/handlers, the required personnel (eg, recreational staff and/or nursing staff) and the necessary precautionary hygiene and safety measures are mostly absent, as are specific courses for volunteers on the desired target population (eg, courses on how to approach people with dementia). The animal selection criteria mentioned by respondents are broad and unspecified (eg, "the animal has to be healthy") and the high number of respondents (140) who either skipped the question about animal welfare measures or answered they do not know whether specific safety measures are used, is quite alarming in itself. The lack of these protocols as found in our survey is comparable to the findings of other studies. Waltner-Toews,²⁸ who focused on zoonotic disease concerns of AAT and visitation programs, concluded only 10% of respondents (animal care agencies and humane societies) had printed guidelines about the prevention of zoonotic disease transmission and fewer than half of respondents consulted a health professional about prevention of zoonotic disease. Lefebvre and colleagues²⁹ noticed a significant lag in relevant infection and prevention policies concerning animal visitation programs and subsequently developed practical guidelines for AAIs in health care facilities. Finally, both Lannuzzi and Rowan³⁰ and Santori³¹ looked at the ethical issues in AAT programs, and both concluded that even though most AAI programs appear to have a relatively benign impact on the animals, general ethical guidelines and recommendations are needed for these programs to prevent inappropriate animal use and exploitation.

The reasons for the lack of knowledge about relevant guidelines and protocols as found in our survey are probably twofold. First, the relative ease of organizing AAI programs, especially visiting animal

programs, combined with the enthusiasm of clients, personnel, and volunteers for these kind of interventions, seems to create a “let’s do this” type of attitude, without attention for underlying risks. All you need is a volunteer with a dog who is able to visit on a regular basis and a visiting program is born. In essence, there is nothing wrong with such a practical approach, and it should be noted that the current programs are perceived by the respondents to be successful and are very much enjoyed by clients. Incidents involving animals during AAI programs seem quite rare, even in the current largely unregulated state³⁰; yet with the growth of the AAI field, the need for a basic set of regulations cannot be ignored.

The second reason for lack of knowledge of proper guidelines and protocols is in essence a lack of universal guidelines and protocols in the AAI field itself. A proliferation of AAI organizations exist both worldwide and in the Netherlands, with or without proper qualifications and with different approaches to AAI. If a nursing home opts to use an AAI organization or qualified AAI volunteers, it is quite difficult to choose one based on clearly defined criteria, because those criteria do not exist at the moment. Only very recently, the IAHAIO released a white paper addressing these issues,¹⁰ whereas Zenithson and colleagues³² provided comprehensive guidelines to ensure the welfare of therapy animals. National AAI organizations are tasked with developing universal guidelines and protocols that will, hopefully, ultimately lead to some kind of register of specifically qualified AAT therapists and to the necessary blueprints of AAI programs. In the United Kingdom, for example, the Society for Companion Animal Studies has recently developed a very practicable AAI Code of Practice.³³

Our survey shows that AAT programs are currently notably absent in the nursing homes that participated in this survey. A therapy dog foundation that specifically offers AAT for people with dementia does exist in the Netherlands,³⁴ but none of the nursing homes that participated in this survey mention the involvement of this foundation or the specific use of therapy dogs in dementia care. Our survey does not provide any insights into why therapy dogs are not used. Possibly nursing homes are unaware of the existence of trained therapy dogs as suitable interventions for people with dementia, or possibly financial motives are involved. Our survey does show that respondents often confuse AAAs with AAT and seem unaware that for an intervention to qualify as a therapy, specific therapeutic goals and a therapy plan are needed and the presence of a therapist is required.

AAT programs require different, more strict, qualifications and guidelines than AAAs. A physician will be less likely to refer a client to AAT, and health insurance companies will be less likely to pay for such therapy, without some form of regulation in the field. A specific AAT register therefore will undoubtedly aid the implementation of AAT programs in nursing homes. To establish such a register, more research on the therapeutic efficacy is needed. Palley et al.³⁵ concluded the same in their article about mainstreaming AAT: *“To fully integrate AAT into conventional medical practice as an accepted therapeutic modality, more convincing intervention studies are necessary to confirm its clinical merits.”*

This study has several limitations. The response rate of 30% is low and when corrected for duplicate entries even lower (21%). The results of this survey, therefore, cannot necessarily be extrapolated to all Dutch nursing homes. However, the nursing homes that have responded represent all provinces of the Netherlands, thus balancing this limitation somewhat.

The respondents represent diverse functions within the nursing home (ie, management staff, nursing staff, recreational staff, administrative staff, and therapists). It is quite plausible that management staff has a different depth of knowledge of AAI programs in their organization than recreational staff. A manager will possibly know more about guidelines and protocols, whereas recreational staff will probably know more about the practical side of things. This could

potentially lead to different answers. Indeed the duplicate answers (more than 1 survey returned for 1 nursing home) show that 2 people in the same organization can give different answers depending on their function. A manager might answer that no alternatives are used, whereas a nurse answers they use FurReal Friends on the ward or conversely, a nurse answers that no protocols are available, but the manager mentions the general hygiene protocol that is used within the organization. This illustrates that managers do not always know what is happening on the wards and vice versa, and that could also have influenced the results.

The overall conclusion that can be drawn is that most Dutch nursing homes participating in this survey use animals in diverse AAA (and not AAT) programs, but mostly without specific underlying AAI protocols or specific outcome assessment tools. An important challenge will be to balance the need for regulations with the risk of overregulation, which will in the end only decrease the implementation of AAI programs. From the answers to the survey it is very clear that all volunteers and all personnel involved in these programs do so with much enthusiasm and with the very best of intentions, and ultimately any attempt to improve quality of life of nursing home clients should only be encouraged. Furthermore, respondents do not mention any negative experiences when describing their AAI programs, and when asked, all respondents would advise others to start AAI programs as well. If nursing home personnel and volunteers can be facilitated with easy-to-use, practical guidelines and protocols, and physicians and therapists can be provided with specific referral guidelines, this would be an enormous step forward in professionalizing the AAI field in nursing homes for the benefit of both the residents and the animals involved.

Self-Selection Bias

To address possible self-selection bias in our sample, we interviewed at random 30 additional nursing homes that were not part of the original sample and determined how frequent AAI is present in this sample of nonresponding nursing homes. Of the 30 nursing homes questioned, 4 did not have any animals on their premises (either visiting or resident), whereas 26 did (87%). Of those 26 nursing homes with animals, 17 homes (65%) organized AAA activities on a regular basis, all involving visiting-animal programs. None of the nursing homes had AAT programs.

Participants of these AAA programs usually suffered from a psychogeriatric illness (14 of 17 homes). In this sample, 12 nursing homes allowed clients to take their own pet (including a dog or a cat) with them on admission, even on psychogeriatric wards. The conditions for clients to have their own pets were that family members commit themselves to take care of the animal when the client can no longer do so and that the animal in question does not create disturbances on the ward.

A small number of nursing homes (6 of 26) reported to have resident pets on the wards (mostly cats, rabbits or birds) and 5 nursing homes indicated to have resident animals in a meadow on the premises for the clients to visit. These resident animals were, however, not part of an AAA program. None of the nursing homes used specific AAI guidelines. Only one respondent mentioned taking animal welfare into account when organizing AAA activities and terminating activities when animal welfare could not be guaranteed.

Based on these results, we conclude that the original sample of our survey is a representative sample of Dutch nursing homes.

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