

Universidad Autònoma de Barcelona

Facultad de Derecho

ICALP (International Center for Animal Law and Policy)

Departamento de Derecho Público y Ciencias Histórico Jurídicas

Máster en Derecho Animal y Sociedad - 10º edición

Responsabilizing & Supporting Practitioners in the Application of Welfare Policies

for Animals Involved in Animal Assisted Interventions

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RESUMEN

Los beneficios destacados de las intervenciones asistidas con animales (IAA) en la salud humana suscitan más y más interés de la opinión pública y de la comunidad científica. Sin embargo, la perspectiva de los animales que participan a las IAA está poco considerada en la literatura. Debido a una casi ausencia de regulaciones sobre la práctica de IAA, el bienestar de estos animales cae en las responsabilidades de los terapeutas y profesionales involucrados en estas actividades. Hemos combinado una revista de la literatura académica con una encuesta cualitativa de los profesionales para identificar el impacto de las IAA en los animales, los medios para asegurar su bienestar y las oportunidades para seguir mejorando. Hemos podido identificar desafíos y perspectivas para los profesionales involucrados en IAA. Vemos necesario de establecer un cuadro legal sobre la practica de las IAA, una formación acreditada, obligatoria y enriquecida, colaboraciones y conexiones con veterinarios y médicos y de aplicar el principio de las 3Rs al contexto. Por fin, esta investigación destaca el potencial de las IAA de pasar a ser una aplicación de la estrategia One Health, conectando la salud humana con la salud animal.

ABSTRACT

The benefits of animal-assisted interventions (AAI) on human health is more and more established and interesting for the scientific community. However, few studies have taken in consideration the the animals' perspective in this context. Since it generally does not exist any legal framework or regulations to the practice of AAI, practitioners in AAI have the welfare of these animals in their hands. Here, we combined a review of the current literature with a qualitative study directed to practitioners, in order to evaluate the impact of AAI on animals, the current means to ensure their welfare and the opportunities to improve it. Theoretical and practical challenges have been identified as well as best practices and solutions. We recommend the establishment of a legal framework, an accredited and enriched curriculum for practitioners, close collaborations with veterinarians and medical humanities and the application of the 3Rs principles. This paper also highlights how AAI programs have the potential to become a One Health framework, ensuring mutual benefits for both humans and animals.

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Acknowledgments

I wish to thank the following individuals who have directly played a part in the completion of this paper.

Dr. Cunilleras: Thank you for accepting to supervise me as a student, for your guidance, for your creativity and for giving me the opportunity to structure and to enrich my investigation.

Dra. Candela: Thank you for giving me the opportunity to study animal law in the best conditions.

Margarita Barrera Asensio: Thank you for your support throughout my studies and for your answers to all my questions.

I also want to express my appreciation to the following family member and friends who have supported me throughout this paper: my partner Gerardo Nuñez and my close friends, Isaure Cazaux and Charlotte Ria.

Finally, I wish to thank all the professionals who participated in the qualitative study of this paper.

I. Introduction

A) Background and motivation for research

“Pet owners are happier and healthier.”, “Why Equestrian Therapy works.”, “How Horses Help Human Heal.”, “Dolphin Therapy Fights Depression.” On a basic keyword search on the search engine Google, enthusiastic and praising articles about the benefits of animals as companions and therapeutic partners fill the web every day. Nowadays, the beneficial effects of animals on humans are commonly accepted, popular and promoted while there is very few publications that take into consideration the animals’ perspective. Indeed, if Animal Assisted Interventions (AAI) are well acknowledged, there are a lot of challenges and ethical considerations to face at the same time¹.

The very few articles about the animal’s perceptive show that AAI can cause a number issues that go against animals’ welfare². In fact, AAI imply the use domesticated animals as well as captive undomesticated animals such as dolphins, reptiles and monkeys. Considering the original anthropomorphic intention of the practice of AAI, that is to say, to improve health and well-being of humans, ethical and deontological dilemmas become more and more obvious when we start to look at it from the animal’s perspective.

Since it generally does not exist a legal framework for AAI in the European Union and internationally, welfare protection of animals participating to AAI is in the hands of practitioners, who do not need to show official credentials or accreditation to practise. For now, it looks that we can “only” count on the deontology and the good will of those professionals to apply welfare policies,³ that is to say to take measures and action in order to maintain “*the (good) state of the animal's body and mind, and the extent to which its nature (genetic traits manifest in breed and temperament) is satisfied*”⁴. How to ensure that the practitioner have the means, resources and support to protect animals? How to find a balance in its professional mission towards humans and towards animals?

Faced to those problematic, our study aims to contribute to the development of professional approaches to train, to responsabilize and to support practitioners in the field. By gathering

¹ Iannuzzi, Dorothea & Rowan, Andrew. (1991). Ethical Issues in Animal-Assisted Therapy Programs. *Anthrozoos*. 4. 154-163. 10.2752/089279391787057116.

² Kaiser, Lana & Heleski, Camie & Siegford, Janice & Smith, Katharine. (2006). Stress-related behaviors among horses used in a therapeutic riding program. *Journal of the American Veterinary Medical Association*. 228. 39-45. 10.2460/javma.228.1.39.

³ Schlote, Sarah. (2009). Animal-assisted therapy and equine-assisted therapy/learning in Canada: Surveying the current state of the field, its practitioners, and its practices. 10.13140/RG.2.2.18766.10566.

⁴ Hewson C. J. (2003). What is animal welfare? Common definitions and their practical consequences. *The Canadian veterinary journal = La revue veterinaire canadienne*, 44(6), 496–499.

information from a literature review and by collecting data from a qualitative research, we want to offer an informed and global understanding of the situation as well as formulating potential answers and perspectives for the future of AAI from an animal protection approach.

To filter information as well as getting a global understanding of the application of welfare policies for AAI, it has been chosen to limit the investigation to 3 species: the dog, the horse and the dolphin. Studying each of those species in the context of AAI represents an opportunity to understand different types of practices, where the concept of welfare is likely to be approached differently: the dog representing a domestic animal as well as one of the most common therapy animal, the dolphin as a non-domestic animal and one of the least common therapy animal and the horse as an animal that can't be associated as a pet, neither as a non-domestic animal.

B) Research questions and objectives

Considering that AAI are mostly approached from the human perspective and generally focus on the needs of humans, the central question that this research seeks to answer is: what must be done by practitioners to ensure the application of welfare policies, that is to say the application of measures and actions to ensure *“the (good) state of the animal's body and mind, and the extent to which its nature (genetic traits manifest in breed and temperament) is satisfied”*⁵ in the context of AAI while supporting human health and well-being?

This broad question will be divided into a number of sub-questions, which include:

- What are the current practices of these practitioners towards welfare policies? Our investigation will seek to discover the importance of animal welfare for those professionals, in which extent they are able to apply welfare policies and how they can take the responsibility of the welfare of the animals they work with.
- What are the standards and best practices in the field of AAI? What are the benefits of applying welfare policies in the context of AAI? Could stimulations and processes be favourable on either side for a mutual proliferation?
- What are the challenges and the needs of these practitioners to ensure the application of welfare policies? What knowledge, skills and learning standards are practitioners expected to know in order to protect animals in the context of AAI? What must be done in terms of regulations and structure to meet the developed standards and best practices to ensure the application of welfare policies?

⁵ Hewson C. J. (2003). What is animal welfare? Common definitions and their practical consequences. *The Canadian veterinary journal = La revue veterinaire canadienne*, 44(6), 496–499.

What kind of support practitioners need in order to ensure those responsibilities (professional network, collaborations with experts...)?

C) Methodology

The research has began by conducting a review of literature that allowed us to articulate the different parts of the research. Indeed, the literature review enabled us to precise some issues facing the field from an academic and intellectual point of view as well as designing some elements of answers to the research questions.

The second phase of the research has consisted of conducting a qualitative study addressed to practitioners in the field. This part of the research enabled us to understand the needs of the professionals in the field from an empiric point of view. Gathering ideas from the professionals themselves allowed us to enrich our research with practical solutions and a wide range of point of views.

Objectives of the qualitative study

The qualitative study was aimed at gaining knowledge about the following:

- Perceptions and attitudes held by AAI practitioners towards the welfare of the animals they are working with.
- Current possibilities and practices hold by those professionals towards the welfare of the animals they are working with.
- Intentions and perspectives hold by those professionals towards the welfare of the animals they are working with.
- Challenges and needs hold by those professionals towards the welfare of the animals they are working with.

Design of the qualitative study

The questionnaire study was elaborated according to a previous survey assessing animal welfare according to farmers⁶. This previous study was using the theory of planned behaviour as a conceptual framework and some questions of the questionnaire has been reformulated according to this template study, as it is being shown below:

⁶ Kauppinen, Tiina & Vainio, Annukka & Valros, A & Rita, Hannu & Vesala, Km. (2010). Improving animal welfare: Qualitative and quantitative methodology in the study of farmers' attitudes. *Animal Welfare*. 19.

Questionnaire of the qualitative study

A – Professional, educational and academic background

1. What is your academic and educational background?
2. What is your professional experience in animal therapy?

B – Professional practice

3. How do you select animals that work with you?
4. How do you make animals work with you?
5. Describe your current practice as a practitioner of animal therapy (number of sessions every week, planning of the sessions, role of the animal, length of the session, your role in the session,...)
6. How important do you perceive animal welfare within your work?
7. How easy do you perceive animal welfare within your work?
8. In which extent do you think that relations between participants and animals might result in a level of mutual proliferation?

C- Needs & challenges

9. In the near future, how likely are you to improve animal welfare within your job?
10. What do you believe is necessary for the field of animal therapies to evolve in order to ensure the application of animal welfare policies?

Participants

This survey focused specifically on the practitioners that foster personal growth and therapeutic development with the species selected for this research, that is to say, dogs, horses and dolphins. The sample size of this qualitative research has been determined according to Creswell⁷ (1998)'s standards that suggest at least 6 interviews in order to conduct a phenomenological study. The population of interest consisted of helping professionals that incorporate dogs, dolphins or horses into their practice based in Europe and in the United States.

Potential limits

Since some participants are coming from some pre-existing relationships, that is to say not randomly selected, it is possible that those who responded are not representative.

⁷ Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA: Sage Publications.

The participants are actually composed of significantly more equine therapists. Consequently, the results give more information about the welfare of therapy horses than therapy dogs and dolphins.

Additionally, it must be noted that the participants that answered the survey are also the ones that were willing to be studied and that were concerned by the subject of welfare and therefore, are not representing the different existing profiles in the profession.

Pilot testing

The qualitative survey was pilot in two phases. In the first phase, we asked 5 professionals in the field to review the questionnaire for readability, comprehension. We wanted to identify any problem with the instrument. The feedback received was taken into consideration and one question was corrected and modified accordingly, to be more understandable by the participants of our survey.

Confidentiality and privacy

Since some participants have a pre-existing relationship with us, there is a possibility that some respondents may have felt obligated to participate. A statement to this effect was included in the information about the survey, informing such individuals that they had the right to withdraw. Even if the surveys were anonymous, it was possible for us to identify some of the participants based on their answers. The identities of these individuals will nonetheless remain confidential

II. Context

In order to enter in our subject and in the development of this investigation, it is essential to define the field we will be looking at. First of all, it is worth having in mind that that an animal-assisted intervention (AAI) includes “*any intervention that intentionally includes or incorporates animals as a part of a therapeutic or ameliorative process or milieu*”⁸ that involve a variety of species (dogs, cats, horses, domesticated birds, etc.) in health care. The scope of our investigation will take into account the different forms of AAI that exist, that is to say:

- Animal visitations programs – this intervention consists of transporting animals in a venue where an encounter with participants will take place.
- Residential programs – in this situation, animals lives within the residence where the participants are.
- Animals in individual counselling/ psychotherapy / coaching – punctual and regular sessions are organised for the animal and the participant to meet in the context of a personal development programme.
- Eco-therapy also called Dolphin Assisted Therapy (DAT) – a number of weekly sessions are planned in a short period of time in a dolphinarium.
- Equine programs – Participants come to meet horses in a dedicated venue.

In this part of our investigation, we will discover in more details who is concerned by AAI, through the definition of the animals, professionals and patients involved and what the different forms of AAI and practices suppose in terms of environment, relationships between the actors and protocol. Finally, we will explore how AAI have evolved in the history from its beginnings to our times.

Through this exploration of our context, the question of our investigation « what must be done by practitioners to ensure the application of welfare policies for AAI while supporting human health and well-being ?» will remain at the core of our approach and will make us look at the context of AAI from an animal protection perspective.

⁸ Kruger, K. A., & Serpell, J. A. (2006). *Animal-assisted interventions in mental health: Definitions and theoretical foundations*. In A. H. Fine (Ed.), *Handbook on animal-assisted therapy: Theoretical foundations and guidelines for practice* (p. 21–38). Academic Press.

A) Who?

a) *The animals*

First of all, AAI have different forms that involve the different species of our study. The following table (**TABLE 1**) shows which species are used for which practice:

TABLE 1 – Species used in the different types of AAI

| Animal visitation programs | Animal residential programs | Animals in individual counselling/ psychotherapy / coaching | Eco-therapy | Equine programs |
|-----------------------------------|------------------------------------|--|--------------------|------------------------|
| Dogs | Dogs | Dogs | Dolphins | Horses |
| Horses | | Horses | | |

The animals participating to AAI become involved in a treatment for many different reasons. Not only the relationship created with the animals help the patient, it can help the therapist to understand the patient's inner world – especially in the case of children that don't have the words to explain troubles or people that only communicate through the body language. Consequently, the role can take the shape of « *examples from which to draw parallels with the client's affect/behaviour, icebreaker, transitional object, assessment tool, projective device, confidant, experiential learning partner, source of calm and relaxation, mirror, teacher of how to be in relationship*»⁹.

According to our qualitative study, animals are chosen to be part of AAI for different of reasons evoked by practitioners (**FIGURE 6**):

- Most of the practitioners mentioned that **the personality of the animal** is the number one factor in the selection. The personality is generally assessed according to the needs of the participants to AAI. Among the qualities that are mentioned, we find the ability to listen and to be calm. Here are some significant extracts of the description of the character that are looked for :

« *I look for eagerness for attention. Not obnoxious eagerness but general wanting to please and the ability to calm.*»

« *With social skills and without fear.*»

- **Some physical and morphology criteria** criteria could also count, especially in the case of horses. Thus, an equine therapist comments that horses that work with her, need not to be over a certain height.

⁹ Hatch, Alison. (2007). The View from All Fours: A Look at an Animal-Assisted Activity Program from the Animals' Perspective. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 20. 37-50. 10.2752/089279307780216632.

- **Training and experience** of the animals can also be important for practitioners at the moment of selecting an animal. A dog therapist says that she chooses animals that have been trained since they are puppies. Some equine therapists appreciate older horses. Finally, some dolphin therapists are stressing about this criteria. Here is the comment of one of our participant to the qualitative survey :

« Dolphin trainers in dolphinarium have to prepare animals and decide which dolphin is good for therapy in meaning likes to play with children, able to be patient, not aggressive and like to be touched. »

- In some cases, the decision of selection is not entirely given to practitioners. In the case of dogs participating to animal visitations and residential programs , the selection can also be made by an official organisation through **temperament testing**.

- Some practitioners evoke that in some practices, the selection and the participation are based on the **decision of the animal** itself. Some animals have the freedom to decide if they want to be part of animal assisted interventions or not. Here are some significant comments about this fact :

« It is very important that the animals participate willingly. If they have better things to do, so be it! »

« Most dogs can be taught the obedience skills necessary to become a therapy animal but unless they enjoy people, it doesn't work. »

« Above all the dog decides how they want to work with me. I can't pick what they value. »

After those top reasons (personality, morphology, training, test and animal choice) to select an animal for AAI come other reasons explained by practitioners of our qualitative study:

- **The breed** can also constitute a criteria of selection for dogs and horses. A dog therapist mentions that her intention is to work specifically with poodles. An equine therapist has chosen to work with fjords and Shetlands. The main reasons that are given behind the choice of a breed is related to physical and mental characteristics associated to the breed.

- Some practitioners reveal that **the quality of the relationship between the animal and themselves** can also be crucial in their choice. For some of them, their intuition at the moment of choosing the animal can be decisive.

- It has also been seen and read that the animals that participate to AAI are **animals that have been given to the practitioner**. We often see some pre-retired horses and horses that used to compete.

- Some dogs and horses can be part of those processes since they are **the practitioners' own animals**.

Comparing those results with the quantitative study about equine therapists conducted by Scholte (2009)¹⁰ about the selection of animals participating to AAI, we can see some similarities. The main reasons evoked in her quantitative study are the personality and the temperament, followed by the appreciation of the practitioners that see in some animals, some «*sentient beings called to do this kind of work*».

Comparing our empiric results to our literature review, it looks like the reasons behind this process of selection in the context of AAI have some limits. Thus, it has been observed that in some cases, practitioners can be biased in their selection since they lack of information about the history of the animal, their previous experiences and their preferences, like in the case of shelter dogs. Additionally, it is worth bearing in mind that the suitability of an animal may change. Older and experienced animals are expected to present less stress especially in the case of dogs and horses. However, aged animals can become too fragile to cope with the workload that involve AAI¹¹.

Regarding our concerns about the welfare of therapy animals, it seems that most of the criteria of selection of those animals are anthropomorphic, that is to say, based on the needs of the practitioners and of the patients above all. If the criteria about the personality, the morphology, the training and the breed could be seen as rather tangible, we notice that other criteria can be very subjective or random.

In order to ensure the application of welfare policies, it looks like tangible criteria remain a better guarantee for animal protection than subjective criteria: it is supposed that animals that are chosen according to their ability to endure a certain physical and mental workload is likely to induce a better welfare than when they are chosen according to the needs of humans. In some cases, the best scenario to ensure the application of welfare policies is probably the decision of the animal itself.

However, in the case of dolphins that are non-domestic animals, the question of the decision of the animal appears quite controversial: dolphins are often captured in the wild, must received an intense training and adapt to a very different habitat than their natural habitat where the application of the welfare policies seem compromised from the start.

¹⁰ Scholte, Sarah. (2009). Animal-assisted therapy and equine-assisted therapy/learning in Canada: Surveying the current state of the field, its practitioners, and its practices. 10.13140/RG.2.2.18766.10566.

¹¹ Glenk, Lisa. (2017). Current Perspectives on Therapy Dog Welfare in Animal-Assisted Interventions. *Animals*. 7. 7. 10.3390/ani7020007.

b) Professionals

As far as the professionals are concerned in AAI, it is worth to precise who the practitioners are, with who they work and how it affects the application of welfare policies.

Firstly, AAI is done in different contexts that bring a variety of professionals together as the following table (TABLE 2) shows.

TABLE 2 – Professionals & staff directly and indirectly involved in the different types of AAI

| Animal visitations programs | Residential programs | Animals in individual counselling/ psychotherapy / coaching | Eco-therapy | Equine programs |
|---|------------------------------|---|--|--|
| The handler / practitioner The medical / healthcare team | The medical/ healthcare team | The practitioner | Professionals of the aquarium / sanctuary / dolphinariums including dolphin trainers | Professionals of the stables The practitioner |
| | | | The practitioner | |

It is worth mentioning that the level of professionalism and expertise of the people involved is variable in AAI. Since there is no legal framework about the practice, some practitioners have followed a specific training to be a mediator between humans and animals and others don't. It is common to see AAI conducted through a collaboration of one person specialized in human care and another person specialized in animals but it is often conducted by one person only. Furthermore, it is worth noticing that the sector actually welcome a lot of volunteers¹². We also observe that some practitioners own the animals, they are working with while others are renting or using animals they don't own. Regarding the variety and the different profiles of practitioners involved in AAI, the question remains: what's the best for the animals?

First of all, **ownership, familiarity and emotional bound with the animal** very often imply a certain level of concern and responsibility and therefore, influence the application of welfare policies. Thus, it is expected that the practitioner that is also the owner of the animal will be the most suitable person to detect signs of distress and discomfort.

However, Butler (2004)¹³ explains the dynamic that can exist between a dog handler and their animal and how it can affect the animal welfare: *“There is a strong social connection between handlers and their animals. The animals, after all, often hold the admission tickets to activities their handlers enjoy very much. It is understandable that some handlers measure a degree of their worth based on the recognition they receive from their animal-related services. Sometimes handlers want to keep the team intact, even when the animal is ready to break up the act.”*

¹² De Santis, Marta & Contalbrigo, Laura & Simonato, Martina & Ruzza, Mirko & Toson, Marica & Farina, Luca. (2019). Animal assisted interventions in practice: mapping Italian providers. *Veterinaria Italiana*. 54. 323-332. 10.12834/VetIt.1226.6831.1.

¹³ Butler, K. (2004). “Therapy Dogs Today: Their Gifts, Our Obligation.” Funpuddle Publishing Associates, Norman.

Furthermore, González-Ramírez, Mónica & Ortiz, Xóchitl & Landero-Hernández, R.. (2013)¹⁴ demonstrated that “a significant negative correlation between handlers' stress and the stress they identified in their dogs which suggests that stress during the animal-assisted therapy sessions was negatively associated with the therapy team performance”. Based on those results, the emotional bond between the animal and the practitioner can have a contrary effect when the practitioner is mentally unbalanced.

In the reality, based on the results of our qualitative study, most of the practitioners (73,53%) involved in AAI do not own the animals (**FIGURE 4**). In the case of animal visitation programs, individual counselling/coaching/psychotherapy and equine programs, it is indeed common to see practitioners who work with animals they own but in the case of dolphin therapies, they are generally not owned by the professional and in the context of residential programs, the dog is supposed to be under the responsibility of the medical team but the animal is not owned by a private owner.

If the case where the animals are not owned by the practitioners, some professionals aim at getting to know the animal, its habits and its language, to be able to detect signs of distress or discomfort. Thus, some equine therapists participating to our study commented that they spend time with the animals outside of the session to build an understanding of the animal.

Specific trainings in AAI and experience with animals also look important to ensure a certain level of application of the welfare policies. From our literature review, Ng, Zenithson & Fine, Aubrey. (2019) insist on the importance of education and training of the animal handler :«*The handler should be equipped with the education and training to recognize behavioural indicators of stress, especially those that have been established in dogs such as lip licking, yawning, panting, paw lifting, body shaking, and lowered posture.*»¹⁵ Consequently, the skills of a volunteer that has not completed a special training may not be enough to ensure the safety and the well-being of the animals involved.

Based on the results of our qualitative study (**FIGURES 2 & 3**), most of the practitioners (66,67%) have followed a specific training in AAI. However, it concerns mostly equine therapists who are 94,12% to have followed a specific training. Most of dog handlers (60%) and dolphin therapists (71,43%) have not followed a specific training.

However, it appears that training programmes in AAI have some limits¹⁶. Indeed, participants to our qualitative study stress on the fact that trainings often lack of information about ethology and

¹⁴ González-Ramírez, Mónica & Ortiz, Xóchitl & Landero-Hernández, R.. (2013). The role of stress of therapy dog handlers in animal-assisted therapy. *Ansiedad y Estrés*. 19. 1-10.

¹⁵ Ng, Zenithson & Fine, Aubrey. (2019). Considerations for the Retirement of Therapy Animals. *Animals*. 9. 1100. 10.3390/ani9121100.

animal handling. If it looks important to have experience and knowledge of animal care, it also seems rather necessary to have notions about human psychology in order to support an ethical human-animal encounter in the context of AAI: an animal care expert that has no idea of human psychology may not be able to predict the anticipated signs of stress, violence, aggression or damage coming from the patients and addressed to the animal involved in AAI.

Based on our findings, practitioners who are rather professionals than volunteers, who have a special bond with the animal in question, who look after their own mental health, who have experience and specific trainings in both animal care and human psychology, are the ones who seem in better capacity to ensure the application of welfare policies and are probably rare considering the number of skills and attributes required.

c) Clients

As far as the patients are concerned, AAI appear suitable and effective for a wide range of patients and present advantages that help supporting withdrawn or non-communicative patients. In fact, being in presence of an animal in a therapeutical context sounds like coming back to a « natural and authentic» language, with all the virtues that comes with it for the patient and all the observations that are necessary for the practitioner and/or the therapeutical team.

Thus, animals are in general very charismatic and attractive to **children and youth**. It seems that younger patients show higher involvement with animals than with adults or tasks. Among all the benefits that can bring animals to children in the context of AAI, we have listed the development of¹⁷:

- a sense of safety,
- interpersonal relationships,
- self-esteem,
- verbal/non-verbal communication,
- focus, self-awareness and social awareness,
- balance, flexibility, coordination and balance,
- quality of life,
- relaxation and letting go,

¹⁶Shkedi, Anita (2015), *Equine Assisted Activities or Therapy: Towards a Future Curriculum*. University of Derby <http://hdl.handle.net/10545/621346>

¹⁷ Cuypers k., De Ridder K., Stranheim A. (2011), The effect of therapeutic horseback riding on 5 children with attention deficit hyperactivity : a pilot study. *Journal of alternative and complementary medicine* 17 (10) Fine, A. (2010). *Handbook on animal-assisted therapy. Theoretical foundations and guidelines for practice*. 4th ed. Academic Press. Elsevier, London.: 901-908

- emotional intelligence and social adaptability.

In the case of **adults and seniors**, AAI present a lot of benefits as well¹⁸:

- increased socialization,
- helpfulness,
- friendliness and cooperativeness,
- decreased worrying and increased confidence
- social stimulation,
- self-concept,
- motivation,
- and feelings of achievement and competence.

The testimonies of practitioners in the field go in the same way. Here are some significant comments of practitioners in the field

« A couple of times the dogs have helped calm patients while they have medical procedures done, my dogs find the interactions quite entertaining and many of the people they work with have been enabled to open up and express buried emotions. »

« For many years we noted an improvement in communication and social contacts in most of cases after dolphin therapy course. That changes are manifesting like: the growth of interest in social contacts, the emergence of new, more advanced forms of social contact (eg.: interest in peers, interest in new people, interest in public events, manifestations of empathy), the emergence of new words or new language skills noted, improvement of concentration, which is the basis for all social action, improvement in the regulation of behaviour (including reduced aggression, increased motivation, or at least the patience to participate in the classes).»

Finally, not only the patients get the benefits, Aviv T., Berant E., Katz Y. (2016) note that family members show distress as well¹⁹.

To come back to the species we are studying in this investigation, it is worth mentioning that it seems that dolphins are more used in AAI to support and help children. Among the adults, equine programs have often been prescribed to veterans with post-traumatic stress disorder whereas dog visitations programs are recommended for people in long-term care facilities or people with dementia for logistical reasons : it is easier to bring a dog to those patients usually staying in their health-care centres, than a horse or a dolphin. Finally, equine programs and more especially

¹⁸ Perraud, Florence. (2013). [Animals used in therapy for the wellbeing of elderly people]. *Soins. Gérontologie*. 18. 10-2. 10.1016/j.sger.2012.11.009.

¹⁹ Aviv T., Berant E., Katz Y. (2016) The contribution of therapeutic horseback riding orientation to the improvement of executive functions, sensory processing, self esteem and parental distress levels among children with ADHD. 14Th tiennal IAHAIO International Conference, p171.

hippotherapy will generally be recommended as an alternative or a complement to physiotherapy, for people suffering from neuromotor disorders (adults and children).

Considering the wide range of patients that are exposed to animals in AAI, it is worth wondering if some profiles of patient will constitute threats for the animal's welfare.

In the case of patients who have **physiological and neuromotor disorders**, Hatch (2007) mentions the risk of accident and potential physical harms for the animal. Recent studies show that equine therapy programs with patients who had both physical and physiological expectations « *were more challenging for horses than those with patients who had only psychological expectations* »²⁰

Furthermore, our literature review has revealed that **active, impulsive and rather uncontrolled participants** could generate a significant stress on animals. Thus, a study on horses point out number of stress-related behaviours being higher when horses are ridden by at-risk children²¹. Similarly, therapy dogs are expected to tolerate physical intimacy and to remain calm with children who want to have a close physical contact with them which can become unpleasant and stressful²². A recent study about equine programs conducted in prisons have revealed that those programs have resulted for some participants in recidivism and disciplinary misconduct, probably implying the inadequate treatment of horses by those participants²³. Another case study of therapy dogs working in the treatment of an extremely active child diagnosed with ADHD implied significant degradation in dogs' welfare²⁴.

A participant of our qualitative study points out that the application of welfare policies also depend on **the number of patients involved**. This participant offers AAI in prisons and comments on the fact that situations with groups can be difficult to handle in terms of welfare.

In the case of dolphins, it looks that dolphins keep distance, have less contact-duration and contact-frequency with adults than children and that they prefer small humans, maybe because they appear less dangerous to them²⁵.

²⁰ Mendonça T, Bienboire-Frosini C, Menuge F, et al. The Impact of Equine-Assisted Therapy on Equine Behavioral and Physiological Responses. *Animals (Basel)*. 2019;9(7):409. Published 2019 Jul 1. doi:10.3390/ani9070409

²¹ Kaiser, Lana & Heleski, Camie & Siegford, Janice & Smith, Katharine. (2006). Stress-related behaviors among horses used in a therapeutic riding program. *Journal of the American Veterinary Medical Association*. 228. 39-45. 10.2460/javma.228.1.39.

²² Glenk L. M. (2017). Current Perspectives on Therapy Dog Welfare in Animal-Assisted Interventions. *Animals : an open access journal from MDPI*, 7(2), 7. <https://doi.org/10.3390/ani7020007>

²³ Bachi, Keren. (2013). Equine-Facilitated Prison-Based Programs Within the Context of Prison-Based Animal Programs: State of the Science Review. *Journal of Offender Rehabilitation*. 52. 46-74. 10.1080/10509674.2012.734371.

²⁴ Serpell, James & Coppinger, R. & Fine, Aubrey & Peralta, J.M.. (2010). Welfare Considerations in Therapy and Assistance Animals. 10.1016/B978-0-12-381453-1.10023-6.

²⁵ Karsten Brensing & Katrin Linke (2003) Behavior of dolphins towards adults and children during swim-with-dolphin programs and towards children with disabilities during therapy sessions, *Anthrozoös: A multidisciplinary journal of the interactions of people and animals*, 16:4, 315-331

To conclude, it looks like participants that require specific medical or therapeutical material in connexion with their physiological or/and neuromotor disorder as well as participants showing active and aggressive behaviours could represent a potential risk for harm, stress and discomfort for the animals. The height and the size of patients can also have an impact on dolphins' welfare. Finally, in the case of groups, the number of participants to look after can be an important task for the practitioner where the application of welfare policies can become a low priority.

B) What are the practices?

After identifying the different actors involved in animal assisted interventions, we will follow by describing in which environment the practices are taking place, what they involve in terms of procedures and protocols and how it affects the application of welfare policies for the animals. Each environment involves a combination of an atmosphere, a space, a targeted population, a specific staff among others elements that can affect the well-being of the animal.

a) Environment

The different forms of AAI are taking place in different venues. The practice of AAI is either done:

- In specialized centres dedicated only to AAI
- In a venue dedicated to animals where AAI is one of the services offered (examples: dolphinariums, horse-riding schools)
- In the practice of the professional
- In the venue where the participants stay or visit (health care venues, hospitals, prisons, residences...)

TABLE 3 – Facilities & venues according to the different types of AAI

| Animal visitations programs | Residential programs | Animals in individual counselling/ psychotherapy / coaching | Eco-therapy | Equine programs |
|--|---|--|--------------------|--|
| Health care venues Hospitals Residences Prisons Schools for individuals with special needs | Health care venues Hospitals Residences | Private practice | Dolphinariums | Specialized centres in equine programs Horse-riding schools |

Firstly, it is important to understand the characteristics of each practice in terms of **design, space and accommodation for the animals**.

In the case of visitations and residential programs, venues will have been thought « *to reduce labour costs and to facilitate hygiene* ». When animals are visiting, it implies transportation to a new location. Glenk (2017) affirms that therapy dogs that are transported in different locations can

suffer from physiological arousal by walking on different floor substrates (e.g., parquet, plastic, stairs, iron grids). According to him, « *challenging stimuli including wheelchairs, crutch and, metal walkers, sudden noise, white coats, high temperatures in their working environments* » represent a lot of elements that therapy dogs must integrate and adapt to²⁶. When animals are residential, it is common that they are kept in holding facilities (kennels or stables) for long periods of time.

Venues dedicated to animals that are offering both recreational and therapeutical services such as equine programs in horse-riding schools or eco-therapy in dolphinariums may not be thought from an animal welfare perspective but from a commercial one. In the case of dolphins, several detailed studies show that the animals are captured in the wild and transported for thousands of miles to be established in aquariums²⁷ where they need to adapt to semi-natural or captive settings²⁸. A study conducted in 2005²⁹ report that dolphins participating to DAT could show signs of stress “*such as avoidance, speed increase, higher metabolism and intensification of a subgroup*” in absence of a refuge area whereas has been “*dolphins supplied with a proper refuge area, prefer this area and show reduced aggressive, submissive, and abrupt behaviours*”. Interacting with dolphins comes with a risk of infection for humans, therefore most dolphinariums increase the concentration of chlorine in the pools, resulting in some irritations for the animals³⁰. Frohoff & Packard (1994) have observed the dolphin/human interactions with free-ranging and captive bottlenose dolphins and report that indicators of disturbance are observed in both contexts. However, they are more frequent in the case of free-ranging dolphins³¹. Those results are important for us considering that DAT are mostly conducted in a captive environment.

In the case of AAI conducted in horse-riding schools, equine therapists of our qualitative study report that the housing in stalls and boxes for horses are depriving the animals from a freedom of movement and from social contact. Based on our results from our qualitative study, some practitioners working in a centre that is not theirs or/and do not own the animals, admit that they

²⁶ Glenk L. M. (2017). Current Perspectives on Therapy Dog Welfare in Animal-Assisted Interventions. *Animals : an open access journal from MDPI*, 7(2), 7. <https://doi.org/10.3390/ani7020007>

²⁷ Samuels, A., Bejder, L., and Heinrich, S. (2000). A review of the literature pertaining to swimming with wild dolphins. Marine Mammal Commission, Silver Spring, Maryland. 57 pp.

²⁸ Burls, A. and Caan, W. (2005). Human health and nature conservation: ecotherapy could be beneficial, but we need more robust evidence. *British Medical Journal*, Vol. 331, 1221-1222.

²⁹ Breusing, Karsten & Linke, Katrin & Busch, Melanie & Matthes, Ina & van der Woude, Sylvia. (2005). Impact of different groups of swimmers on dolphins in swim-with-the-dolphin programs in two settings. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 18. 409-429. 10.2752/089279305785593956.

³⁰ Geraci, J. R. and Ridgway, S. H. (1991) On disease transmission between cetaceans and humans. *Marine Mammal Science* 7(2): 191–194.

³¹ Frohoff, Toni & Packard, Jane. (1994). Human Interactions with Free-Ranging and Captive Bottlenose Dolphins. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 8. 44-53. 10.2752/089279395787156527.

have difficulties to ensure welfare (**FIGURE 4 & 5**) because they are not the only ones to deal with the animals: it is the case of practitioners working in a horse-riding school for example.

In specialized centres dedicated to AAI like it can be seen for equine programs for example, it is expected that « *some attention will have been given to the design and construction of animal-friendly equipment and holding facilities for AAA/T* »³².

In terms of the **staff involved**, since each practice involve a different environment, animals in AAI face different types of unfamiliar and familiar faces.

In the context of visitation programs, animals are in presence of strangers represented by the health care team and the participants that are likely to approach, to touch and to handle them. In residential facilities, the health care staff is supposed to oversight the animals. Dogs who have primarily bred for guarding family members or a certain group of people can also become suspicious of unfamiliar people and feel discomfort when they are petted and hugged by strangers³³. It has been reported « *a lack of clear chain of command* », « *inadequate advance planning* » and « *lack of commitment* » « *extra stress or work for staff* »³⁴ with respect to animal care responsibilities.

In equine programs, horses are required to face a wide range of people from the staff of the stables to the participants. Successive handlers and professionals composing the team can « *cause distress due to the disruption of pre-existing social bonds.*» In the case of horses, it is also worth stressing that the environment can create social challenges for the animal resulting in fear and anxiety responses such as « *being ridden alone, being asked to move independently of other horses, accepting the restraint and handling procedures imposed by the rider, being exposed to novel stimuli, situations, and environments* »³⁵.

In the case of dolphins, DAT generally last for 6 weeks where dolphins are in presence of the same participants every day, provoking a disruption of social bonds at every new program.

³² Serpell, J.A., McCune, S., Gee, N.R., & Griffin, J.A. (2017). Current challenges to research on animal-assisted interventions. *Applied Developmental Science*, 21, 223 - 233.

³³ Kuhne, Franziska & Hößler, Johanna & Struwe, Rainer. (2012). Effects of human–dog familiarity on dogs' behavioural responses to petting. *Applied Animal Behaviour Science*. 142. 176–181. 10.1016/j.applanim.2012.10.003.

³⁴ Bibbo, Jessica. (2013). Staff Members' Perceptions of an Animal-Assisted Activity. *Oncology nursing forum*. 40. E320-E326. 10.1188/13.ONF.E320-E326.

³⁵ De Santis, Marta & Contalbrigo, Laura & Borgi, Marta & Cirulli, Francesca & Luzi, Fabio & Redaelli, Veronica & Stefani, Annalisa & Toson, Marica & Odore, Rosangela & Vercelli, Cristina & Valle, Emanuela & Farina, Luca. (2017). Equine Assisted Interventions (EAIs): Methodological Considerations for Stress Assessment in Horses. *Veterinary Sciences*. 4. 44. 10.3390/vetsci4030044.

In definitive, it seems that the practices that are taking place in specialized centres with a regular trained staff and participants give more chance to animals to benefit from the application of welfare policies whereas venues that are not thought for welcoming animals can quickly become threatening for animal welfare. Standardizing the practice with regular staff and participants as well as similar processes and rituals can help the animal to predict the environment and to experience less stress. On the contrary, an unfamiliar environment and successions of new participants, professions and processes may create confusion and stress for the animals.

b) Protocol

Depending on the type of practices that is involved, animals that are participating to AAI may be submitted to a more or less strict protocol composed of test, training and rules and safety routines.

In the case of animal visitation and residential programs, animals are generally asked to pass a test where they need to answer criteria, to pass behavioural analysis, to go through vaccination schedule as well as some full cleaning before entering in healthcare organisations³⁶. The protocol aims at answering standards of security and hygiene for patients.

In the case of individual counselling, psychotherapy or coaching, several participants to our qualitative research mention the importance of the training they give to animals.

In the case of dolphins, it seems that trainings are crucial in order to ensure the safety and the security of patients, as the participants of our survey comment:

« Dolphin trainers in dolphinarium have to prepare animals and decide which dolphin is good for therapy in meaning likes to play with children, able to be patient, not aggressive and like to be touched. (...) I developed my method together with the trainers. I told trainers what dolphin behaviours I need for therapy and they prepare dolphins that behaviours. In my method we do therapy only with special trained dolphins.»

« Dolphin therapy at this organization consists of applying direct sonar to the nervous system via the cranium and spine. The dolphins are trained to echolocate upon request. Sessions in the water include the participant, two support people, the dolphin trainer and an organization representative.»

³⁶ Silveira, Isa & Santos, Nanci & Linhares, Daniela. (2011). Protocol of the Animal Assisted Activity Program at a University Hospital. *Revista da Escola de Enfermagem da U S P*. 45. 283-8. 10.1590/S0080-62342011000100040.

Curran, Kevin & Miller, Julie. (2009). "Guidelines for Animal-Assisted Interventions in Health Care Facilities". *American journal of infection control*. 37. 257-8. 10.1016/j.ajic.2008.08.002

Candelieri (2018) affirms that *“The dolphin is a wild, unpredictable animal, even when well trained: so the dolphin’s health and behaviour in captivity make the logistics of this type of therapy challenging”*³⁷, confirming the hypothesis of a strict and heavy protocol in the case of dolphins.

In the case of dogs, the training is not automatic but some participants of our survey comment on an ongoing training and on some material and incentives they use, such as clicker training or food reward:

« I don’t limit my resources. I started as a balanced trainer (had a dog that needed a prong collar due to collapsing trachea and harnesses were not allowed at the time) but I’ve worked with just toys, treats, and even avoidance to get what I want and don’t want. »

« I went through various trainings with him to make sure he would be a good fit as a therapy animal. »

In the case of horses, only one participant over 17 mention the importance of a basic training. Some equine therapists mention that they work with the horses on a regular basis to develop the relationship but none of them talks about a specific training of the animal to participate to AAI.

We observe that the way to prepare animals to AAI are more or less invasive depending on the environment where they will « perform », on the people they will interact with and on the objectives of the therapist. Due to their non-domestic status, it appears that dolphins are submitted to the most invasive trainings. The fact that they may be asked to be touched or to echolocate upon request may be consider a technique that go against their welfare. In the case of dogs, some trainings need to answer very specific objectives and could look like a deprivation of their freedom and of their natural behaviour. Finally, horses seem to be rather free from specific trainings for AAI and are often offered to act and to move in liberty in some sessions. Nevertheless, it is expected that they are being controlled with harnesses and material during the sessions. It can be concluded that protocols are established according to anthropocentric needs where the animals are generally not allowed to express their natural behaviours.

³⁷ Candelieri, Irene. (2018). Healing and Caring in Dolphin-Assisted Therapy: Criticisms of Effectiveness and Ethical Issues. *Gestalt Theory*. 40. 323-335. 10.2478/gth-2018-0024.

The protocol of each practice implies different length of interventions as it is show below (**TABLE 4**).

TABLE 4 – Average length of an AAI session according to the species involved (dog, horse or dolphin)

| Length of a session | |
|---------------------|----------------------------|
| AAI with dogs | between 30 and 90 minutes |
| AAI with horses | between 30 and 120 minutes |
| AAI with dolphins | between 25 and 40 minutes |

Several participants mention that they have set a maximum of sessions per day and that they plan some break times during sessions. Here are some extracts about how they accommodate animals according to a planning of sessions:

« Sessions last for one hour and normally, they are weekly sessions. Dogs that are involved in AAI have a maximum of 2 or 3 hours of work every day. In our team, we have several dogs to allow some days off to every day. »

« A horse works for 2 or 3 sessions every week. I never have 2 sessions in a row. The sessions last for 45 minutes. »

« I believe we would need to allow horses to have some break times between sessions. They tend to accumulate tensions. However, it is never easy as I generally have sessions the one after the other.»

We observe that the working time of animals involved in AAI depend on the practitioner that may not have some influence on the planning or may not be willing to act according to some ethical values. Thus, it looks like the workload of animals in AAI can be very aleatory, creating uncertainty about their welfare.

In definitive, the implementation of the protocols that animals should follow in the context of AAI can be more or less invasive: the more specific the training to apply the protocol is and the longer the sessions are, the worse it is probably for the animal's welfare.

c) The therapeutic relationship

The encounter between the animal and the patient can take different forms, depending on the therapeutic model that is adopted.

Brookes (2006)³⁸ identifies 2 therapeutical models in the case of AAI:

- The triangle model designates a therapeutical work where the medical, educational or psychological professional works without the assistance of an animal handler. The professional is in charge of the human and the animal care. This model can be used to guarantee the maximum

³⁸ Brooks S. 2006. *Animal assisted psychotherapy and equine facilitated psychotherapy with children who have trauma histories*. In N. Boyd (Ed.), *Working with traumatized youth in child welfare*. New York, Guilford Press.

privacy and confidentiality. It also happens that the lack of resources and people in a structure lead to this model.

- The diamond model differs from the triangle model in the sense that the medical, psychological or educational professional works in partnership with an animal handler. This model is often used with large animals like horses or with animals that require precautions such as dolphins. The challenge for the practitioner and the animal handler is to find some communication boundaries and pathways while interacting between the patient and the animal.

TABLE 5 – The therapeutical model adopted according to the type of AAI

| Animal visitations programs | Residential programs | Animals in individual counselling/ psychotherapy / coaching | Eco-therapy | Equine programs |
|-----------------------------|----------------------|---|---------------|-----------------|
| Diamond model | Triangle model | Both models | Diamond model | Both models |

Animal assisted interventions can be extremely different from one practice to the other, depending on the role that is attributed to the animal and on **the nature of the partnership**, that is to say, if it is an active partnership or a passive partnership³⁹.

In the case of an active partnership, some practitioners will have the need of getting a special behaviour and attitude from the animal at a precise moment. Gorman (2019) calls this type of relation, « *a parasitic exchange* » where the welfare of humans is the focus and where the human needs take over the animal welfare in the sense that animals are not able to behave according to their needs. When the practitioner place the animals more « *as tools to provoke some form of therapeutic encounter for humans* » in a passive relationship, animals are used for their presence and accompany humans in a « *therapeutic space* » where they can behave freely⁴⁰.

Depending on the definition of the therapeutic relationship, the application of welfare policies by practitioners can vary significantly. It appears that in the case of a triangle model, the practitioner may look after human well-being in priority and may get distracted from the animal care. The presence of an animal handler in the diamond model is likely to bring more attention and knowledge about the animal that can lead to a better application of welfare policies. Regarding the different types of partnerships, it looks like the active one can restrict significantly the freedom and the natural behaviour of the animal whereas the passive partnership gives a space where the animal can move freely.

³⁹ Gorman, Richard. (2019). What’s in it for the animals? Symbiotically considering ‘therapeutic’ human-animal relations within spaces and practices of care farming. *Medical Humanities*. 45. medhum-2018. 10.1136/medhum-2018-011627.

⁴⁰ Ibid.

C) Evolution in the history

a) Early ages

Humans and domestic animals have a long history of relationship together. AAI are based on this idea that the presence of an animal may bring well-being, mental and physical health and the development of social skills.

Indeed, according to the biophilia hypothesis⁴¹, humans appear to possess an innate tendency to seek connexions with nature and other forms of life, including animals. Moreover, humans often attribute particularly positive characteristics to animals. In the case of the species studied in our study, dogs generally evoked friendship and are commonly called « the best friend of the man », dolphins are seen as very intelligent and sensitive animals⁴² and horses have represented for centuries, power, strength as well as freedom.

Grandgeorge & Hausberger (2011)⁴³ found evidence that patients in Belgian hospitals were caring for birds in the 11st century. In the 18th century, patients in madhouses or asylums started to be treated more humanly: they used to be confined and restrained by chains. Some institutions started to provide them with outdoor activities. Among such change was the creation of «asylum farms» where patients were exposed to natural settings as well as animals⁴⁴. In 1940, it is also reported that horseback riding and care of farm animals were prescribed to veterans in the US. At those times, the involvement of animals in mental health was considered as a revolution.

However, Serpell (2010) identifies other beliefs systems that “*virtually annihilated animist belief in the supernatural power of animals and animal spirits throughout much of the world*” since the Middle Age. According to him, the Christian church persecuted a significant number of animist believers for their beliefs in animal form, which could explain the domination of the anthropocentrism in Western countries and maybe the current unwillingness of the medical communities to recognize the contribution of animals to human well-being⁴⁵.

When the Dr. Boris Levinson, an American professor shared his findings in a publication called *The dog as a co-therapist* reporting the benefits of pets in child therapy in the 1960s, it was seen as a

⁴¹ Wilson, E. (1989), *Biofilia*, México: Fondo de Cultura Económica.

⁴² Stumpf, Eva & Breitenbach, Erwin. (2014). Dolphin-Assisted Therapy with Parental Involvement for Children with Severe Disabilities: Further Evidence for a Family-Centered Theory for Effectiveness. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 27. 10.2752/175303714X13837396326495.

⁴³ Grandgeorge, Marine & Hausberger, Martine. (2011). Human-animal relationships: From daily life to animal-assisted therapies. *Annali dell'Istituto superiore di sanità*. 47. 397-408. 10.4415/ANN_11_04_12.

⁴⁴ Davison, G.C., Neale, J.M., Blankstein, K.R., & Flett, G.L. (2005). *Abnormal psychology* (2 nd Canadian ed.). Mississauga, ON: John Wiley & Sons Canada, Ltd.

⁴⁵ Serpell, James. (2010). Animal-Assisted Interventions in Historical Perspective. 10.1016/B978-0-12-381453-1.10002-9.

groundbreaking statement. Levinson's views were unique and unconventional and he reported that his colleagues were not taking his ideas seriously and were asking « *whether [his] dog shared in the fees* »⁴⁶.

Based on this information about the early ages of AAI, we understand that AAI have been developed as one of the alternatives to traditional psychoanalysis⁴⁷, like cognitive-behavioural therapy or Gestalt therapy. However, it is noted that AAI did not benefit from the same notoriety as these other alternative approaches.

From this historical review, we understand that AAI have represented an alternative to conventional medical practices but have not been recognized like other alternative therapies. Considering that the practice of AAI has not been acknowledged seriously since its beginnings, we understand that the consideration of the animals participating to AAI has been set aside and that the evolution of mentalities probably constitute a preliminary step in the application of welfare policies.

b) Benefits

Nowadays, mentalities have evolved and the research on AAI acknowledges a wide range of human health benefits⁴⁸.

Among the improvements that have been reported, AAI have been associated with a number of psychological benefits such as improved self-esteem, a sense of connexion with another living being and enthusiasm with treatments. It has also opened opportunities for patients to discuss fears and anxieties as well as learning self-control and emotional/behavioural regulations skills⁴⁹. By prescribing AAI for patients with various disorders, it was found that areas of improvement include cognitive benefits as well such improved attention and better communication.

⁴⁶ Levinson, B.M. (1962). *The dog as 'co-therapist'*. *Mental Hygiene*, 46, 59-65.

Levinson, B.M. (1964). *Pets: A special technique in child psychotherapy*. *Mental Hygiene*, 48(2), 243-248.

⁴⁷ Somers-Flanagan, J. & Somers-Flanagan, R. (2004). *Counseling and psychotherapy theories in context and practice*. Hoboken, NJ: John Wiley & Sons, Inc.

⁴⁸ Ng, Zenithson & Morse, Laura & Albright, Julia & Viera, Ann & Souza, Marcy. (2018). Describing the Use of Animals in Animal-Assisted Intervention Research. *Journal of Applied Animal Welfare Science*. 22. 1-13. 10.1080/10888705.2018.1524765.

⁴⁹ Ewing, C.A., MacDonald, P.M., Taylor, M., & Bowers, M.J. (2007). Equine-facilitated learning for youths with severe emotional disorders: A quantitative and qualitative study. *Child Youth Care Forum*, 36, 59-72.

In the case of hippotherapy, physical benefits refer to: improved postural symmetry, enhancing balance and strength, trunk core strengthen⁵⁰, stimulation of locomotion patterns⁵¹ and improved gross motor skills.

In the case of dolphin therapy, it is claimed that “*the biosonar of dolphins may play an effect on human biological tissue and brainwave activity: the ultrasound from the echo-location clicks of dolphins is supposed to have an electromechanical effect on the endocrine system and human tissues and to stimulate them positively*”⁵². Not only a wide range of human health have been reported in short term, it has also been reported that the therapeutic gain after DAT is remarkable and stable⁵³.

However, other studies are claiming the contrary, affirming that the research on the effects of AAI is characterized by small-scale interventions, a weak study design and inconsistent methodology⁵⁴. In our literature review, we have found very sceptic comments about studies showing inconclusive results or no benefits from AAI⁵⁵. In the case of dolphin therapies, some papers about the doubts of its effectiveness are virulent. Fiksdal, Houlihan and Barnes (2012)⁵⁶ denounce that “*the majority of the studies conducted supporting the effectiveness of dolphin-assisted therapy have been found to have major methodological concerns making it impossible to draw valid conclusions.*”

If it has always existed a strong belief that interaction with animals has a positive impact on the persons involved and it exists a widespread acceptance of AAI⁵⁷, such criticisms do not help to

⁵⁰ Mutoh, Tomoko & Mutoh, Tatsushi & Tsubone, Hirokazu & Takada, Makoto & Doumura, Misato & Ihara, Masayo & Shimomura, Hideo & Taki, Yasuyuki & Ihara, Masahiro. (2019). Effect of hippotherapy on gait symmetry in children with cerebral palsy: A pilot study. *Clinical and Experimental Pharmacology and Physiology*. 46. 10.1111/1440-1681.13076.

⁵¹ Marchis, Zamfir & Răducu, Camelia & LADOSI, Daniela & Eugen, Jurco & Coroian, Aurelia & Coroian, Cristian & PRATA, Luciana & JURCO, Simona. (2017). Research on Hippotherapy Effects in Children with Disabilities. *Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Animal Science and Biotechnologies*. 74. 59. 10.15835/buasvmcn-asb:12213.

⁵² Candelieri, Irene. (2018). Healing and Caring in Dolphin-Assisted Therapy: Criticisms of Effectiveness and Ethical Issues. *Gestalt Theory*. 40. 323-335. 10.2478/gth-2018-0024.

⁵³ Stumpf, Eva & Breitenbach, Erwin. (2014). Dolphin-Assisted Therapy with Parental Involvement for Children with Severe Disabilities: Further Evidence for a Family-Centered Theory for Effectiveness. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 27. 10.2752/175303714X13837396326495.

⁵⁴ Palley LS, O'Rourke PP, Niemi SM. Mainstreaming animal-assisted therapy. *ILAR J*. 2010;51(3):199-207. doi:10.1093/ilar.51.3.199

⁵⁵ Bowers, M.J. & MacDonald, P.M. (2001). The effectiveness of equine-facilitated psychotherapy with at-risk adolescents. *Journal of Psychology and Behavioral Sciences*, 15, 62-76.

Folse, E.B., Minder, C.C., Aycok, M.J., & Santana, R.T. (1994). Animal-assisted therapy and depression in adult college students. *Anthrozoös*, 7(3), 188-194.

Marino, L. & Lilienfeld, S.O. (2007). Dolphin-assisted therapy: More flawed data and more flawed conclusions. *Anthrozoös*, 20(3), 239-249.

⁵⁶ Fiksdal, Britta & Houlihan, Dan & Barnes, Aaron. (2012). Dolphin-Assisted Therapy: Claims versus Evidence. *Autism research and treatment*. 2012. 839792. 10.1155/2012/839792.

⁵⁷ Ng, Zenithson & Morse, Laura & Albright, Julia & Viera, Ann & Souza, Marcy. (2018). Describing the Use of Animals in Animal-Assisted Intervention Research. *Journal of Applied Animal Welfare Science*. 22. 1-13. 10.1080/10888705.2018.1524765.

make of AAI, an accepted therapeutic modality. Considering the number of studies and the amount of research to discuss the effects of AAI on humans, confirming the benefits for humans appears more as THE priority in the academic field, leaving the question of the welfare of the animals participating to AAI behind.

The lack of support of the scientific and medical sector have significant consequences on the field of AAI. Indeed, it has been reported that the sector of AAI suffers from a crucial lack of funding and the absence of partnership with local health services⁵⁸. Palley, O'Rourke and Niemi (2010) explained the evolution of AAI as "*a push by enthusiastic advocates rather than by prescribing physicians*". The lack of reimbursements for treatments affect the workload of practitioners in the field that are often not getting much work. Scholte (2009)⁵⁹ mentions that practitioners are likely to have other sources of livelihood to support AAI practices.

In a sector where anthropomorphic needs remain the priorities, we must recognize that the lack of recognition in the scientific and medical sector constitutes another obstacle to move on to investigations about the animals' benefits in AAI, to consolidate the sector of AAI and to research on the most appropriate procedures or species for AAI from the animal's perspective⁶⁰.

c) A fragmented sector

The battle to establish AAI as a legitimate and credible practice does not only take place in the scientific sphere. In spite of the growing popularity surrounding AAI⁶¹, the struggle is also felt within the sector and among the professionals representing the profession.

First of all, it does not exist educational requirements and clear standards for training and experience. In her investigation of the current state of AAT and EAT/L in Canada, Schlote (2009) show that practitioners have different educational levels, *« from high school to post-doctoral studies, and hailed from a range of different professional fields, including backgrounds unrelated to the helping professions, such as engineering, history, journalism, even waitressing.»* In our qualitative survey, it has been identified that almost all equine practitioners have had a specific training in AAI (94,12%) whereas less than half of dog handlers (40%) and less than the third of dolphin therapists(28,57%) have a specific qualification in AAI (**FIGURES 2 & 3**). More than 20

⁵⁸ De Santis, Marta & Contalbrigo, Laura & Simonato, Martina & Ruzza, Mirko & Toson, Marica & Farina, Luca. (2019). Animal assisted interventions in practice: mapping Italian providers. *Veterinaria Italiana*. 54. 323-332. 10.12834/VetIt.1226.6831.1.

⁵⁹ Schlote, Sarah. (2009). Animal-assisted therapy and equine-assisted therapy/learning in Canada: Surveying the current state of the field, its practitioners, and its practices. 10.13140/RG.2.2.18766.10566

⁶⁰ Grandgeorge, Marine & Hausberger, Martine. (2011). Human-animal relationships: From daily life to animal-assisted therapies. *Annali dell'Istituto superiore di sanità*. 47. 397-408. 10.4415/ANN_11_04_12

⁶¹ Palley L.S., O'Rourke P.P. & Niemi S.M. 2010. Mainstreaming Animal Assisted Therapy. *ILAR Journal*, 51, 199-207.

years ago, Hines and Fredrickson (1998)⁶² commented on the need to monitor and to regulate education in the field: « *Establishment of certification for practitioners of AAA/T is an important next step to increase professionalism in this field. The existence of professional credentials, continuing education requirements, and peer review will provide practitioners with guidelines for quality practice.* » The current results show us that the sector has not evolved significantly in this sense.

Moreover, we assist in a lack of shared terminology: at least sixty different expressions in English and over thirty different expressions in French can be found in the literature and in other sources to designate AAI⁶³. This observation reveals « *a general lack of agreement and philosophical differences among researchers and practitioners about the nature of the work being done* »⁶⁴ and a wide diversity of practices⁶⁵. In this sense, Hines and Fredrickson (1998) had also identified the lack of shared terminology: « *[...However,] one of the greatest challenges in the field is convincing [...] professionals to adopt standards, use standardized terminology* »⁶⁶. Consequently, the offer of services of the sector remain confusing for the public and do not help the profession to be identified and recognized.

In definitive, considering the lack of clear educational standards, the lack of a shared terminology and the confusion of the offer of services it creates for the general public, practitioners cannot expect to reach the same kind of professional recognition as other disciplines and therapeutic/learning techniques for now. The fact that the field of AAI appears fragmented, disjointed and unmonitored bring significant implications on the application of welfare policies for the animals participating to AAI. Indeed, it appears that animals are exposed and threatened by the precarity and the instability of the sector.

⁶² Hines, L. & Fredrickson, M. (1998). *Perspectives on animal-assisted activities and animal-assisted therapy*. In C.C. Wilson and D.C. Turner (Eds.), *Companion animals in human health* (pp. 23-39). Thousand Oaks, CA: Sage Publications Inc.

⁶³ Schlote, Sarah. (2009). *Animal-assisted therapy and equine-assisted therapy/learning in Canada: Surveying the current state of the field, its practitioners, and its practices*. 10.13140/RG.2.2.18766.10566

⁶⁴ Ibid.

⁶⁵ De Santis, Marta & Contalbrigo, Laura & Borgi, Marta & Cirulli, Francesca & Luzi, Fabio & Redaelli, Veronica & Stefani, Annalisa & Toson, Marica & Odore, Rosangela & Vercelli, Cristina & Valle, Emanuela & Farina, Luca. (2017). *Equine Assisted Interventions (EAIs): Methodological Considerations for Stress Assessment in Horses*. *Veterinary Sciences*. 4. 44. 10.3390/vetsci4030044.

⁶⁶ Hines, L. & Fredrickson, M. (1998). *Perspectives on animal-assisted activities and animal-assisted therapy*. In C.C. Wilson and D.C. Turner (Eds.), *Companion animals in human health* (pp. 23-39). Thousand Oaks, CA: Sage Publications Inc.

III. Issues Facing the Field

After presenting the context of AAI in details, this part of our investigation will be dedicated to report the issues that exist in the practice of AAI, from 2 different perspectives.

First of all, we will look at AAI from a liberationist approach, that is to say, from the animal liberation movement that seek the end of the distinction between human and non-human animals through the creation of animal rights, the end to the status of animals as property and the end of any use of animals that benefit to human animals.

Secondly, we will look at AAI from an animal welfare perspective. Here, the concerns are about the well-being of the animals given that non-human animals are considered as sentient and should not suffer under the care of humans.

A) Moral issues from a liberationist perspective

Considering the description of the practice of AAI previously, it looks like there are a number of moral issues that go against the liberationist perspective.

First of all, considering the fact that research efforts are mostly focusing on the human health outcomes and few publications take into consideration the animal's perspective, the practice of AAI appears to have anthropomorphic goals.

Even if some practitioners mention that they won't be able to do their work if the animal was not cooperative, it is worth acknowledging that on the first place, their participation to AAI is initiated by humans to animals and is more or less imposed to them. For Zamir (2006)⁶⁷, there is no doubt about the fact that «*The animal does not enjoy the visit.*». The title of the paper written by Evan and Grey (2011) «*Is It Enough that We Don't Eat Our Co-Workers?*» about the practice and ethics of animal-assisted therapy with children and young people talks for itself and points out the troubling anthropocentrism of the practice⁶⁸. Indeed, according to animalistic movements, animals' participation in AAI is an obstacle to their life determination where their own needs are not considered.

If we take into account that animals need to go through training and testing to participate to AAI, it could be considered that AAI includes even more violations of the animal's well-being. Thus, Zamir

⁶⁷ Zamir, Tzachi. (2006). *The Moral Basis of Animal-Assisted Therapy. Society & animals : social scientific studies of the human experience of other animals*. 14. 179-99. 10.1163/156853006776778770.

⁶⁸ Evans, Nikki & Gray, Claire. (2011). The Practice and Ethics of Animal-Assisted Therapy with Children and Young People: Is It Enough that We Don't Eat Our Co-Workers?. *British Journal of Social Work*. 42. 600-617. 10.1093/bjsw/bcr091.

(2006)⁶⁹ claims that animals pay «*a price for such a life*» referring to the fact they may need to be spayed, neutered and trained for long periods. In the case of horses, working with horses for equine programmes requires «breaking them» and generally come with the use of bites and harnesses. In the case of dolphins, they need to adapt to human presence and perform a number of tasks. We saw previously that training for dogs were not automatic but existed among the participants of our qualitative study.

Additionally, for some animals, the practice of AAI requires a social disconnection from their herd or their kin. From an animalistic perspective, depriving an animal from contact with the animal's herd or kin is supposed to be experienced as a loss by the animal. In the case of dolphins, they are often captured in their natural habitat and disconnected from others in order to keep them in captivity.

Gorman (2019)⁷⁰ denounces the danger of «therapeutic utility» where animals do not receive anything of benefit from these relationships.

Almost 20 years before, Iannuzzi and Rowan (1991) had claimed that «*an environment allowing the autistic person to act in a spontaneous way do not justify the captive of a wild animal* »⁷¹.

In definitive, from a liberationist point of view, AAI is seen as an instrumentalization of the animal and as a form of animal exploitation : Zamir (2006)⁷² concludes that «*doing this to animals is wrong in a similar way. Animals are not out there to be used, even when the use is important or worthy.* »

B) Welfare considerations

To conduct this analysis from an animal welfare perspective, we have chosen to use the Welfare Quality® principles and criteria, as the most promising and updated method to assess animal welfare, accessible for us and available until now⁷³.

⁶⁹ Zamir, Tzachi. (2006). *The Moral Basis of Animal-Assisted Therapy. Society & animals : social scientific studies of the human experience of other animals*. 14. 179-99. 10.1163/156853006776778770

⁷⁰ Gorman, Richard. (2019). What's in it for the animals? Symbiotically considering 'therapeutic' human-animal relations within spaces and practices of care farming. *Medical Humanities*. 45. medhum-2018. 10.1136/medhum-2018-011627.

⁷¹ Iannuzzi, Dorothea & Rowan, Andrew. (1991). Ethical Issues in Animal-Assisted Therapy Programs. *Anthrozoos*. 4. 154-163. 10.2752/089279391787057116.

⁷² Zamir, Tzachi. (2006). *The Moral Basis of Animal-Assisted Therapy. Society & animals : social scientific studies of the human experience of other animals*. 14. 179-99. 10.1163/156853006776778770.

⁷³ Czycholl, I. & Büttner, K. & Beilage, E. & Krieter, J.. (2015). Review of the assessment of animal welfare with special emphasis on the "Welfare Quality® animal welfare assessment protocol for growing pigs". *Archiv Tierzucht*. 58. 237-249. 10.5194/aab-58-237-2015.

The Welfare Quality® assessment is composed of 4 key principles, that is to say, good feeding, good housing, good health and appropriate behaviour. A particular attention is given to how the animal interact with its environment. Each key principle leads to some criteria that is independent of each other as it is being shown below (**TABLE 6**).

TABLE 6 - Welfare Quality® principles and criteria

| Welfare principles | Welfare criteria |
|---------------------------|--|
| Good feeding | Absence of prolonged hunger |
| | Absence of prolonged thirst |
| Good housing | Comfort around resting |
| | Thermal comfort |
| | Ease of movement |
| Good health | Absence of injuries |
| | Absence of diseases |
| Appropriate behaviour | Absence of pain induced by management procedures |
| | Expression of social behaviours |
| | Expression of other behaviours |
| | Good human-animal relationship |
| | Positive emotional state |

According to those parameters, a list of potential risks in relation with the practice of AAI has been established from our literature review:

TABLE 7 - Assessment of the multi-criteria evaluation system of the Welfare Quality® protocol in the context of AAI based on a selected literature review

| Authors | Species concerned | Potential risks | Welfare principle affected |
|--|---------------------------|--|--|
| Granger & Kogan (2000) | Horses, dogs and dolphins | Aggressive client behaviour | Good health |
| Brensing, Linke, Busch, Matthes & Eke van der Woude (2005) | Dolphins | Absence of a refuge area | Good housing |
| | | Concentration of chlorine in the water | Good health |
| Kaiser, Heleski, Siegford & Smith (2006) | Horses | Signs of stress in presence of at-risk children | Appropriate behaviour |
| | | Limited access to water | Good feeding |
| | | High expectations for the length of time animals should visit | Good health |
| Hatch (2007) | Dogs | Inhumane / inappropriate training methods | Appropriate behaviour |
| | | Risk of accident with wheelchairs - a risk to any animal who may be "underfoot" | Good health |
| | | Potential emotional and mental harm | Appropriate behaviour |
| | | High temperatures in nursing homes | Good housing |
| Serpell, James & Coppinger, R. & Fine, Aubrey & Peralta, J.M.. (2010) | Horses, dogs and dolphins | Non-domestic species are harder to train / behavioural and physiological challenges | Appropriate behaviour |
| | | Fatigue of of animal visitations programs | Good health |
| | | Stress and burnout of animal residential programs | Good health and appropriate behaviour |
| | | Animals caged and confined | Good housing |
| | | Inadequately fed and watered Inadequately cleaned | Good feeding |
| Min Hooi Yong and Ted Ruffman (2014) | Dogs | Presence of a overactive child | Appropriate behaviour |
| Gorman (2015) | Horses, dogs and dolphins | Emotional contagion | Appropriate behaviour |
| Glenk L. M (2017) | Dogs | Direct harms and illnesses | Good health - absence of injuries |
| | | Walking on different floor substrates (e.g., parquet, plastic, stairs, iron grids) | Good health |
| Candelieri (2018) | Dolphins | A variety of potentially challenging stimuli including wheelchairs, crutche and, metal walkers, sudden noise, white coats, high temperatures in their working environments | Good health Appropriate behaviour Good housing |
| | | Respiratory, peptic and vision diseases, stress-related disorders | Good health and appropriate behaviour |
| Silas, Haley & Binfet, John-Tyler & Ford, Adam. (2019) | Dogs | Alteration of hierarchies, limitations of sexual partners, impoverishment of original wild group after catching | Appropriate behaviour |
| | | Unability to remove themselves during therapy sessions | Appropriate behaviour |

According to the Welfare Quality® principles and criteria and to our analysis of the literature review (TABLE 7), we can see that the practice of AAI can represent a significant number of threats to animal welfare in lots of different ways. The chronological order of our literature review also reveal us that the issues about animal welfare remain more or less similar with time. Now, the question is how to prevent those risks and how to ensure the application of welfare policies?

A paper published in 2020 give a summary of the challenges of the current practice of AAI: *“Though the animals are used to benefit humans, they also must be able to pursue their own needs interests in avoiding pain, fear, distress, or physical harm and injury.”*⁷⁴

⁷⁴ Fesseha, Haben & Fetene, Takuma & Kidanu, Hailay. (2020). Application of Animal Assisted Therapy: A Review. *Global Veterinaria*. 22. 40-48. 10.5829/idosi.gv.2020.40.48.

IV. The necessity to act

After presenting the current issues that exist and remain for decades in the practice of AAI, this part of the investigation will be dedicated to establish what could happen in long term according to 2 scenarios: the threats that exist if nothing is being done in favour of the application of welfare policies for animals and the opportunities that can emerge in the opposite case.

A) Threats

a) Long-term effects and consequences on animals

We saw that the growing popularity of AAI hide a lot of issues related to this practice. If nothing is being done to responsabilize practitioners in applying welfare policies, it is important to understand the implications in long term and in the future.

Thus, Hatch (2007) lists a number of negative consequences of animal's stress if threats and risks posed to animals in ALI are not identified and addressed: « *if an animal who fears wheelchairs and walkers is pulled toward them (instead of learning to be comfortable with them) the handler could create anxiety in the animal and thereby reinforce the fear.* » In the case of shelter dogs, she notes that it could impact them to the point where they become unadoptable⁷⁵.

Additionally, Carlstead and Shepherdson (2000) note that the repetition of a stressful experience can suppress reproductive functions, impair immune functions, and have other ill effects⁷⁶.

Candelieri (2018) points out the danger of the misinterpretation of some behaviours exhibited by dolphins such specific physiological (sometimes social) functions that are not related to playful patterns or “*the ‘smile’ on their faces, which has nothing to do with a joyful sign, rather than being an anthropomorphic feature of the dolphin*”. If those misinterpretations are not corrected, she predicts that DAT will continue to develop and will expose vulnerable dolphins to activities that highly affect their welfare⁷⁷.

⁷⁵ Hatch, Alison. (2007). The View from All Fours: A Look at an Animal-Assisted Activity Program from the Animals' Perspective. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 20. 37-50. 10.2752/089279307780216632.

⁷⁶ Carlstead K. and Shepherdson, D. 2000. Alleviating stress in zoo animals with *environmental enrichment*. In *The Biology of Animal Stress: Basic Principles and Implications for Animal Welfare*, 337–354, ed. G. Moberg and J. A. Mench. New York: CABI Publishing.

⁷⁷ Candelieri, Irene. (2018). Healing and Caring in Dolphin-Assisted Therapy: Criticisms of Effectiveness and Ethical Issues. *Gestalt Theory*. 40. 323-335. 10.2478/gth-2018-0024.

Serpell, J., Coppinger, R., Fine, A. Peralta, J.M.. (2010)⁷⁸ denounce the fact that animals involved in AAI are expected “*to obey complex commands and perform relatively challenging physical activities (...) They work in busy streets, in crowded areas, among unfamiliar people and other animals, navigating through complicated pathways*”. In long term, those unrealistic expectations can lead to a lot of stress for the animals where the issue is not the training, the environment or the participants, but the excessive workload in itself. If plans for improvement are not anticipated, it could lead to the vicious circle of a turnover of more and more animals that are not given time to relax and to recover and that suffer from stress.

Ng, Zenithson & Fine, Aubrey. (2019) have recently studied the impact of these activities on dog in long-term and it looks that there is « *a point in time when the animal can no longer engage in these activities* ». Ageing animals are naturally less likely to engage in social activities and have much less interest in interacting with strangers. If it seems obvious for the authors that those animals deserve to be removed from those activities, they have found a few reports explaining how some therapy dogs worked until their dying days and especially, one case where “*one elderly AAT dog died before her next scheduled shift.*”⁷⁹

If nothing is being done to responsabilize practitioners, it looks that the application of welfare policies won't be endorsed by anyone else since it has been reported that veterinary education does not include training about animal-assisted therapy and therefore does not prepare veterinarians to examine AAI animals according to the potential risks and threats they could be subject of.⁸⁰

According to this review of the literature, it looks like animals participating to AAI lack cruelly of protection where animals making us think that the growing popularity of AAI will come with a growing number of affected animals caused by the the practice of AAI.

b) Economic interests versus animals' needs

If nothing is being done to responsabilize practitioners in applying welfare policies and to impulse a different dynamic in the sector, it is also worth realizing that the growing popularity of AAI is likely to imply more and more economic agreements and interests that could represent significant obstacles to animal welfare.

⁷⁸ Serpell, James & Coppinger, R. & Fine, Aubrey & Peralta, J.M.. (2010). Welfare Considerations in Therapy and Assistance Animals. 10.1016/B978-0-12-381453-1.10023-6.

⁷⁹ King, C.; Watters, J.; Mungre, S. Effect of a time-out session with working animal-assisted therapy dogs. *J. Vet. Behav.* 2011, 6, 232–238.

⁸⁰ Linder, Deborah & Mueller, Megan & Gibbs, Debra & Siebens, Hannah & Freeman, Lisa. (2016). The Role of Veterinary Education in Safety Policies for Animal-Assisted Therapy and Activities in Hospitals and Nursing Homes. *Journal of Veterinary Medical Education.* 44. 1-5. 10.3138/jvme.0116-021.

Thus, Hines (2003) explains that in the last decades, animals have been exhibited as a miracle cure by media campaigns. Consequently, a large network of actors (veterinarians, animal food industry, therapists...) are involved in AAI, have the need to provide research, services and revenues matching the expectations of an audience and of stakeholders. Almost 15 years later, Serpell, J.A., McCune, S., Gee, N.R., & Griffin, J.A. (2017) reports «*the unusual pressure from the public and media to report and publish positive findings*» about AAI.⁸¹

In the case of dolphin therapies, it is worth noticing that a typical “dolphin program” requires a significant financial investment ⁸²: “*The typical price for five 40-minute sessions is about \$2,600. Typical travel, food, and lodging costs can raise the price to \$5,200 over two weeks. One notable example quoted in 2006, Nathanson’s Dolphin Human Therapy, costs \$7,800 for two weeks or \$11,800 for three weeks not including travel, food, and lodging (...)* It is worth noting that these sums of money are being exchanged for activities that are often nearly indistinguishable from swim-with-dolphin programs typically frequented by tourists”.

In this context, financial gains are likely to become more important than animals’ needs⁸³ In a case where the practitioner gains financially from the use of a therapy animal, the professional may be inclined to use the animal even if the animal show some signs of abuse, distress and discomfort⁸⁴.

The training of practitioners of the sector is also becoming a significant business. Scholte (2009) observes a proliferation of trainings in animal-assisted therapy and equine-assisted therapy where each organisation has its own « ivory tower » and therefore, their own economic interests. In a context where financial gains are becoming more important, Shkedi (2015) is concerned by the lack of consistency and quality of the curriculums offered for future equine therapists. According to her work, the curriculum is not providing enough knowledge in equestrianism and enough experiential learning, resulting in a lack of critical thinking in the sector and in the prevention of professionalism. In the States, she deplores the fact that trainings are accessible to everyone without entry-level requirements⁸⁵.

⁸¹ Serpell, J.A., McCune, S., Gee, N.R., & Griffin, J.A. (2017). Current challenges to research on animal-assisted interventions. *Applied Developmental Science*, 21, 223 - 233.

⁸² Fiksdal, Britta & Houlihan, Dan & Barnes, Aaron. (2012). Dolphin-Assisted Therapy: Claims versus Evidence. *Autism research and treatment*. 2012. 839792. 10.1155/2012/839792.

⁸³ Hines, L. 2003. Historical perspectives on the human–animal bond. *American Behavioral Scientist* 47(1): 7–15.

⁸⁴ Serpell, James & Coppinger, R. & Fine, Aubrey & Peralta, J.M.. (2010). *Welfare Considerations in Therapy and Assistance Animals*. 10.1016/B978-0-12-381453-1.10023-6.

⁸⁵ Shkedi, Anita (2015), *Equine Assisted Activities or Therapy: Towards a Future Curriculum*. University of Derby <http://hdl.handle.net/10545/621346>

If nothing is being done to encourage practitioners to address welfare concerns and to promote the importance of ethics, deontology and morality, we can suspect that economical interests will prevail over any other objective, including the welfare of animals participating to AAI.

B) Opportunities - The potential of mutual benefits

At this stage of our investigation, it is worth identifying what the opportunities could be in the case where practitioners take on the responsibility of applying welfare policies and what the positive outcomes could come along with the consideration of the welfare of AAI animals.

a) for animals

As far as the animals are concerned, AAI could actually constitute some reasonable opportunities for some animals.

In the case of horses, several studies report that AAI do not influence their stress-level and could even constitute some reasonable end points for some of them. A study conducted in 2013 shows evidences that horses had lower cortisol levels with disabled riders than healthy riders, that it is to say that they were less stressed with disabled riders than healthy riders⁸⁶. A more recent study from 2017 shows that horses carrying riders with a disability were not under stress⁸⁷. Finally, in 2019⁸⁸, it has been suggested that horses do not associate Equine-Assisted Therapies as a negative or positive event, given the absence or the lightness of behavioural responses. The authors of this study imagine that the introduction of positive reinforcement during EAT could improve equine welfare by impulsing positive associations with this practice. Even, the liberationist Zamir (2006) expresses that equine programs can provide a comfortable life to horses in comparison with racing and jumping⁸⁹. Gorman (2019) acknowledges that in the case of horses, AAI can allow horses to get used to humans and to live less anxiously⁹⁰.

In the case of dogs, it has been reported that a suitable training for the animal combined with a well trained therapy staff can become key when it comes to develop positive outcomes for the animals in the context of AAI. Indeed, it has been reported that training and education can prevent canine

⁸⁶ Fazio, Esterina & Medica, Pietro & Cravana, Cristina & Ferlazzo, Adriana. (2013). Hypothalamic-pituitary-adrenal axis responses of horses to therapeutic riding program: Effects of different riders. *Physiology & behavior*. 118. 10.1016/j.physbeh.2013.05.009.

⁸⁷ Johnson, Rebecca & Johnson, Philip & Megarani, Dorothea & Patel, Sarita & Yaglom, Hayley & Osterlind, Steven & Grindler, Karen & Vogelweid, Mary & Parker, Taryn & Pascua, Chyan & Crowder, Sandra. (2017). Horses working in therapeutic riding programs: Cortisol, ACTH, glucose, and behavior stress indicators. *Journal of Equine Veterinary Science*. 57. 10.1016/j.jevs.2017.05.006.

⁸⁸ Mendonça, Tiago & Bienboire-Frosini, Cecile & Menuge, Fanny & Lecuelle, Céline & Arroub, Sana & Pageat, Patrick. (2019). How do horses perceive Equine-Assisted Therapies: as negative or a positive event?

⁸⁹ Zamir, Tzachi. (2006). The Moral Basis of Animal-Assisted Therapy. *Society & animals : social scientific studies of the human experience of other animals*. 14. 179-99. 10.1163/156853006776778770.

⁹⁰ Gorman, Richard. (2019). What's in it for the animals? Symbiotically considering 'therapeutic' human-animal relations within spaces and practices of care farming. *Medical Humanities*. 45. medhum-2018-011627.

stress⁹¹. If Hatch (2007)⁹² had identified risks poses by AAI programs, she also admits that AAI programs can provide benefits, especially when the animal's handler has received «*a thorough and comprehensive education*»: in the case of her study about shelter dogs, some social contact with humans can lead to a reduction of stress and make them adoptable.

As far as the dolphins are concerned, Stumpf, Eva & Breitenbach, Erwin. (2014) demonstrate that their program of dolphin-assisted therapies including planned and goal-oriented processes combined with a control of the EU Association for Zoos and Aquariums providing high standards of living conditions for dolphins⁹³.

In definitive, Grandgeorge, Marine & Hausberger, Martine. (2011) see that giving greater attention to animals and studying their well-being have the potential to be beneficial for both partners⁹⁴.

b) for humans

In the hypothesis where practitioners will take on the application of welfare policies, it looks like the welfare of animals can actually lead to better benefits for humans.

Given that O'Hanlon (2001)⁹⁵ had already suggested that unhappy mice in laboratories could give bad information, considering and acting for the animals' well-being and making them « happy » in the context of AAI are supposed to lead to positive implications for humans: it could be deduced that happy and healthy animals will be more likely to collaborate and to help in many better ways. Grandgeorge and Hausberger (2011) confirms that animals tend to develop a better relationship to humans « *if above the quality of interactions and their life conditions are appropriate.* »⁹⁶

⁹¹ Linder, Deborah & MuStumpf, Eva & Breitenbach, Erwin. (2014) Dolphin-Assisted Therapy with Parental Involvement for Children with Severe Disabilities: Further Evidence for a Family-Centered Theory for Effectiveness. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 27. 10.2752/175303714X13837396326495. eller, Megan & Gibbs, Debra & Siebens, Hannah & Freeman, Lisa. (2016). The Role of Veterinary Education in Safety Policies for Animal-Assisted Therapy and Activities in Hospitals and Nursing Homes. *Journal of Veterinary Medical Education*. 44. 1-5. 10.3138/jvme.0116-021.

⁹² Hatch, Alison. (2007). The View from All Fours: A Look at an Animal-Assisted Activity Program from the Animals' Perspective. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 20. 37-50. 10.2752/089279307780216632.

⁹³ Stumpf, Eva & Breitenbach, Erwin. (2014) Dolphin-Assisted Therapy with Parental Involvement for Children with Severe Disabilities: Further Evidence for a Family-Centered Theory for Effectiveness. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 27. 10.2752/175303714X13837396326495.

⁹⁴ Grandgeorge, Marine & Hausberger, Martine. (2011). Human-animal relationships: From daily life to animal-assisted therapies. *Annali dell'Istituto superiore di sanità*. 47. 397-408. 10.4415/ANN_11_04_12.

⁹⁵ O'Hanlon L, 2001, ``Do unhappy mice give bad information?'' *BioMedNet News and Comment*

⁹⁶ Grandgeorge, Marine & Hausberger, Martine. (2011). Human-animal relationships: From daily life to animal-assisted therapies. *Annali dell'Istituto superiore di sanità*. 47. 397-408. 10.4415/ANN_11_04_12.

Considering the well-being and the health of animals participating to AAI can also be seen as a way to guarantee some safety for humans and to avoid zoonotic risk as well as to achieve therapeutic goals⁹⁷.

In a study conducted in Switzerland in 2017, the implementation of animal-assisted therapy in a clinic was initiated by assessing expectations and concerns of the staff. After animal-assisted therapy programs started, the survey shows that the presence of animals improved job satisfaction. It is also suggested that it contributed to prevent burnout in healthcare staff⁹⁸. In definitive, AAI seem to have contributed to create “*a more comfortable environment for both patients and staff*”⁹⁹.

In definitive, caring for animals in the context of AAI and looking after their welfare could lead to more benefits for the patients as well as benefits to the human environment involved in AAI.

c) the perspective of One Health

Considering that looking after animals and caring about their welfare lead to more benefits for animals and humans, it actually lead us to see in the application of welfare policies in the context of AAI, an opportunity to develop a mutually beneficial and dynamic relationship between patients and animals and to imagine an application of One Health, where optimizing the health of both humans and animals is possible.

Besides, more than 81,48% of the practitioners participating to our qualitative study see a potential for mutual benefits (**FIGURE 8**).

In fact, in 2015, Chalmers, Darlene & Dell, Colleen (2015)¹⁰⁰ published a paper supporting the potential implications of the human-animal bond created in the context of AAIs to influence positively health and well-being of both. According to them, mutual benefits are reached with deep bonds between therapy animals and people created in the context of AAIs.

In 2019, an investigation about the human-animal relationship in the context of AAI shows the potential of those interventions to lead to an One Health approach. It looks like different factors can influence the efficacy of the human-animal relationship and therefore the potential of an One Health

⁹⁷ De Santis, Marta & Contalbrigo, Laura & Borgi, Marta & Cirulli, Francesca & Luzi, Fabio & Redaelli, Veronica & Stefani, Annalisa & Toson, Marica & Odore, Rosangela & Vercelli, Cristina & Valle, Emanuela & Farina, Luca. (2017). Equine Assisted Interventions (EAIs): Methodological Considerations for Stress Assessment in Horses. *Veterinary Sciences*. 4. 44. 10.3390/vetsci4030044.

⁹⁸ Hediger, Karin & Hund-Georgiadis, Margret. (2017). Animal-assisted therapy in the view of staff members before and after implementation in a rehabilitation clinic. *Human-Animal Interaction Bulletin*. 5. 61-73.

⁹⁹ Barba, B. (1995). The positive influence of animals: animal-assisted therapy in acute care. *Clinical Nurse Specialist*, 9(4), 91-95. doi:10.1097/00002800-199507000-00005

¹⁰⁰ Chalmers, Darlene & Dell, Colleen. (2015). Applying One Health to the Study of Animal-Assisted Interventions. *EcoHealth*. 12. 10.1007/s10393-015-1042-3.

application such as: “*attachment styles and personalities of both the animal and the handler, an appropriate choice of animal species and their individuality, animal educational training techniques, the relationship between the handler and the animal, and relational reciprocity between animal, the patients, and members of the working team.*” In this study, it is demonstrated that the dog is the animal that show the most predispositions as an One health approach compared to what they call “unconventional pets” such as rabbits. Finally, the authors see in “ *the standardization of animal educational training programs, specific tests to better choose a suitable animal for AAI and a risk analysis to define standardized specific healthcare protocols for different kinds of interventions*” a way to influence the welfare of the animal and to reach mutual benefits between humans and animals¹⁰¹.

Another study also published in 2019 calls for an application of the international guidelines from the International Association of Human-Animal Interaction Organizations (IAHAIO) to comply the principles of One Health in the context of AAI. According to the authors, an One Health framework in the context of AAI needs to ensure that animals involved enjoy this type of activity, are not be overworked, overwhelmed or jeopardized in their safety and comfort¹⁰².

In definitive, the application of welfare policies by practitioners in the context of AAI could definitely lead to an One Health application and to a long awaited legitimacy and recognition of scientific communities.

¹⁰¹ Menna, Lucia & Santaniello, Antonio & Todisco, Margherita & Amato, Alessia & Borrelli, Luca & Scandurra, Cristiano & Fioretti, Alessandro. (2019). The Human–Animal Relationship as the Focus of Animal-Assisted Interventions: A One Health Approach. *International Journal of Environmental Research and Public Health*. 16. 3660. 10.3390/ijerph16193660.

¹⁰² Hediger, Karin & Zinsstag, Jakob & Meisser, Andrea. (2019). A One Health Research Framework for Animal-Assisted Interventions. *International Journal of Environmental Research and Public Health*. 16. 10.3390/ijerph16040640.

V. Results of the qualitative study

In this part of our investigation, we will expose the main results of our qualitative study, found in relation with the question of our investigation «what must be done by practitioners to ensure the application of welfare policies for AAI while supporting human health and well-being ?».

TABLE 8 – Number of participants to our qualitative study

| Number of participants | Skipped questions | Valid questionnaires |
|------------------------|-------------------|----------------------|
| 41 | 7 | 34 |

Our qualitative study focused on the participants that have completed the entire study, that is to say, on the 34 completed questionnaires. We need to acknowledge that we found ourselves with more participants than we had originally planned.

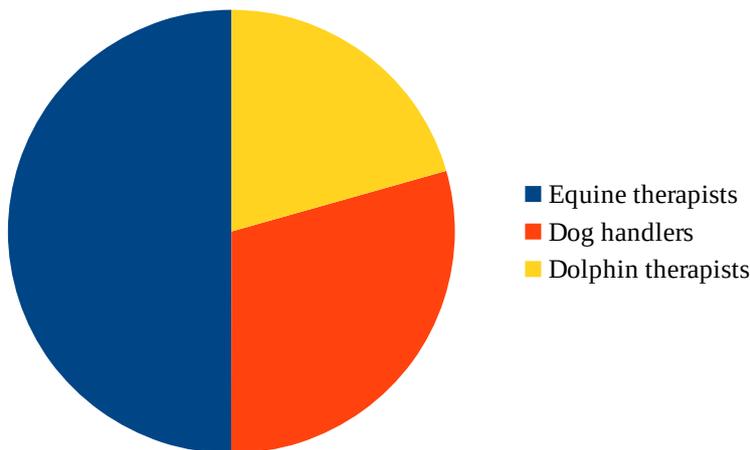


FIGURE 1 – Repartition of equine therapists, dog handlers and dolphin therapists in our qualitative study

Among the 34 completed questionnaires, we count 17 equine therapists (51,52%), 10 dogs handlers (29,41%) and 7 dolphin therapists (20,59%). Given the number of equine therapists participating to the study, we can already say that the results found will not be representative of the practitioners of the sector.

Profiles of participants

Training & certification

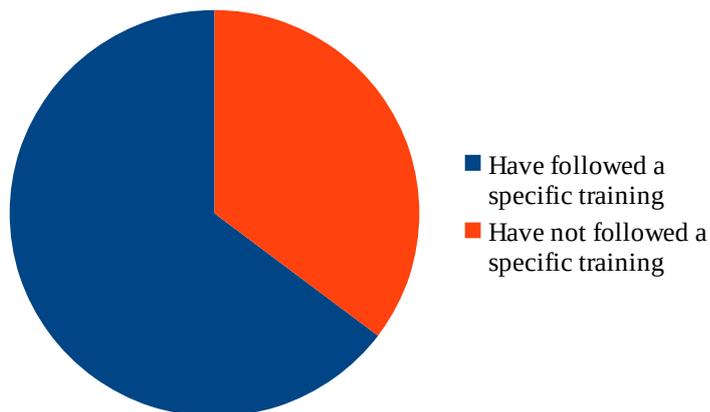


FIGURE 2 – Repartition of practitioners with a specific training in AAI and without a specific training in AAI in our qualitative study

Even if trainings are not official and not compulsory, almost 65 % of the practitioners have followed a specific training.

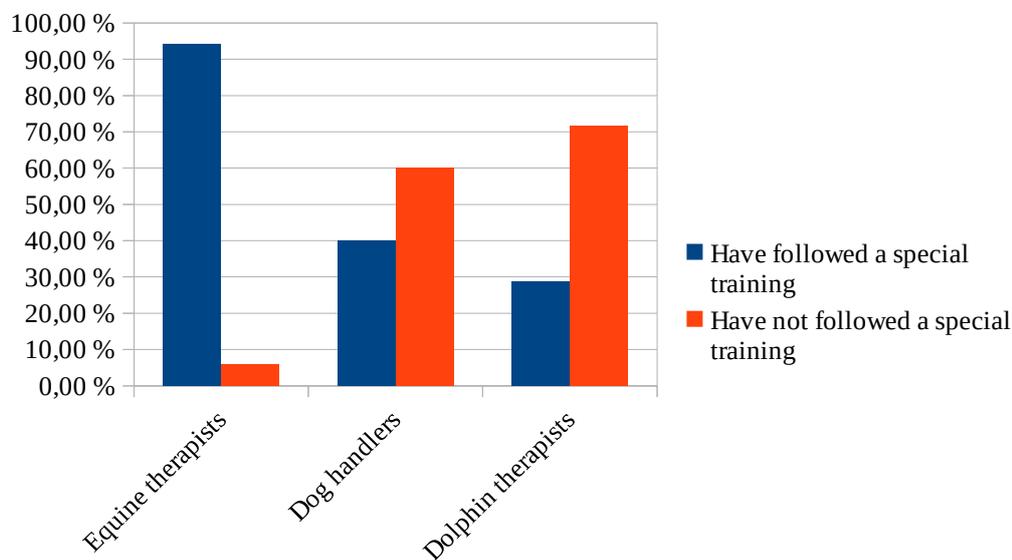


FIGURE 3 - Repartition of equine therapists, dog handlers and dolphin therapists with a specific training in AAI and without a specific training in AAI in our qualitative study

Based on our results, we observe significant differences between equine therapists, dog handlers and dolphins therapists in terms of trainings: if the vast majority of equine therapists have followed a specific training (94,12%), more than half of dogs handlers (40%) and only one of the dolphin therapists of the 7 professionals of our study (28,57%) have have followed a specific training. Those results can be explained by the fact that in the case of the dog handlers, practitioners tend to

be volunteers and in the case of dolphins, dolphin therapists usually work with a dolphin trainer and therefore, are not in charge of the animal care.

Ownership

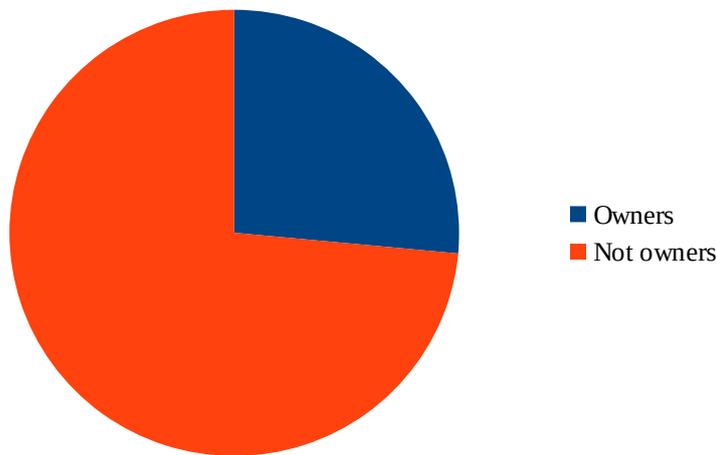


FIGURE 4 – Repartition of practitioners in our qualitative study who own the venue/and or the animals participating to AAI and practitioners who do not own the venue/the animals

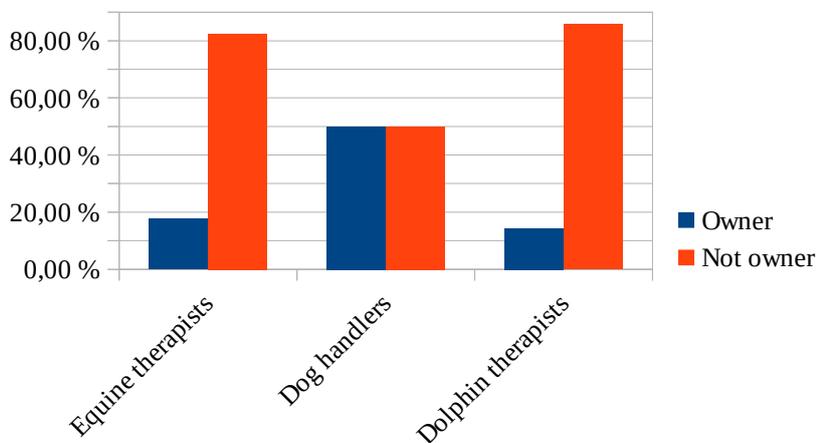


FIGURE 5 - Repartition of equine therapists, dog handlers and dolphin therapists who own their center and who do not own their centre in our qualitative study

Dog handlers tend to own the animals they are working with (50%). Considering the sophisticated installations required to own dolphins and horses, it seems logical that equine therapists (82,35%) and dolphin therapists (85,71%) tend not to own the animals they are working with.

Animal selection

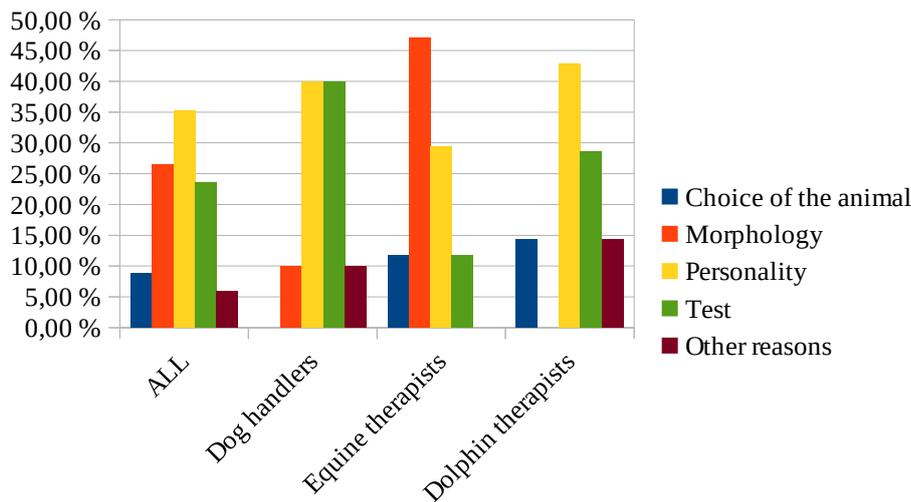


FIGURE 6 – Reasons and considerations in selecting animals for SAT in our qualitative study

Responses mean:

Choice of the animal – the animal itself has decided to take part of the activities of AAI.

Morphology – the animal has been selected to participate to AAI according to its morphology.

Personality - the animal has been selected to participate to AAI according to its personality.

Test – the animal has been selected to participate to AAI according to its performance to a behavioral test.

Other reasons – other reasons have influenced the selection of the animal participating to AAI.

If the personality and the temperament of the animal remains the first reason to select an animal for AAI in general (35,29%), in the case of dogs (40%), behavioural tests represent a more important reason mentioned by the practitioners. Based on the feedback of the practitioners, it looks like behavioural tests for dogs in AAI are common and almost institutionalized whereas it barely exists for dolphins and horses. In the case of horses, the morphology and the physical attributes (47,6%) are more important than in the 2 other species of our study. When we think that horses are used for horse-riding activities within equine programs, those results look very coherent regarding the need of practitioners to work with horses that are able to physically support the participants on their back.

Role of the animal

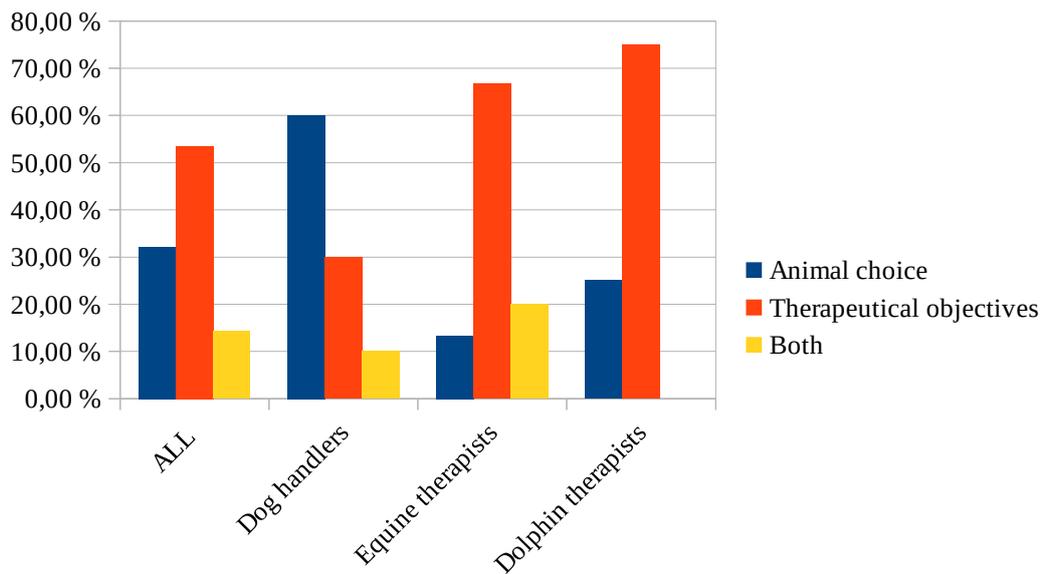


FIGURE 7 – Reasons behind the role of the animal in AAI in our qualitative study

Responses mean:

Animal choice – the role of the animal is decided by the animal itself.

Therapeutical objectives – the role of the animal is defined by the therapist, according to its therapeutical objectives.

Both – the role of the animal is based on the therapeutical objectives as well as the will of the animal itself.

Based on our qualitative study, it looks like 53,7 % of the practitioners conduct the session according to therapeutical objectives, that is to say, plan the session according to the human needs and give limited opportunities to the animal to interact freely. In the case of dogs, it looks like the sessions are less guided considering that the session is based on the animal choice for 60 % of the practitioners. In the case of horses, it shows the lowest score in terms of sessions based on the animal choice with only 13,33 % of practitioners practising sessions in liberty. In fact, given that equine programs may involve horse-riding, it automatically implies the use of harnesses and bites that limit significantly the freedom of the animal. In the case of dolphin therapists, they represent the professionals that stick the most to therapeutical objectives: when we know what the trainings of dolphins consist of - dolphins are usually trained to echolocate and to perform upon request – those results seem like the continuity of what we have read in our literature review.

Welfare considerations and application

TABLE 9 – The importance of animal welfare, the easiness of applying welfare policies and plans to improve animal welfare for practitioners participating to our qualitative study according to their profession, to their education and their status in the centre where they work

| | Importance of welfare | Easiness to apply welfare policies | Plans to improve animal welfare |
|---------------------------|------------------------------|---|--|
| ALL | 98,00 % | 81,42 % | 86,66 % |
| Equine therapists | 95,88 % | 75,29 % | 81,76 % |
| Dog handlers | 100,00 % | 84,00 % | 84,00 % |
| Dolphin therapists | 100,00 % | 88,33 % | 88,33 % |
| Own | 100,00 % | 84,44 % | 87,50 % |
| Do not own | 97,20 % | 77,82 % | 85,21 % |

Based on the average score given by practitioners to the question « How important is animal welfare for you ? » (98%), participants to our study seem to consider animal welfare as very important. There is no significant difference if they are equine therapists, dog handlers or dolphin therapists, if they are owners or not or if they have followed a specific training or not. However, we must note that the lowest score on this question (95,88%) is attributed to equine therapists. They may be the professionals who are the most pressurized economically.

It is worth noticing that the category of participants who are the most inclined to find the application of welfare policies easy are the ones who have not followed a training (88,33%) whereas the category who have followed a training (78,75%) and who are not owners(77,82%) are the ones who are the least inclined to find the application of welfare, easy. It is worth imagining that training and education make professionals more aware of the best standards of welfare policies and maybe that's why practitioners who have followed a specific training find the application of welfare policies more difficult. The "non-owners" have less control on the application of welfare policies and that's why it is logical that their score at this question is rather low compared to the rest of the professionals. Among the different species, equine therapists are the ones (75,29%) who are the least inclined to find the application of welfare policies easy. In fact, we did mention earlier that the fact that they are mainly "non-owners" and can lack of control regarding norms and rules within the stables. In the case of dogs, since they are mostly owned by their owners, the application of welfare policies could appear easier to practitioners. Plus, considering the needs of a dog compared to the needs of horses and dolphins, it seems logical that the score of dog handlers is one of the highest score (84%). In the case of dolphins therapists, the high score of 88,33% at the question about the easiness of applying of welfare policies is both surprising and expected. Dolphin therapists don't deal with animal care and usually let dolphin trainers and experts looking after them, probably leaving them the responsibility to ensure the application of welfare policies whereas they can

concentrate more on the needs of the patients. Additionally, it looks like they may not be aware of ethical issues concerning the captivity and the use of those animals.

The results found about the plans to improve animal welfare within their practice show that practitioners who have not followed a training and dolphin therapists are the most motivated to go further (88,33%). The supposition that those professionals may not be aware of what it implies in depth remain. Dog handlers (84%) and equine therapists (81,76%) represent the category that is the least motivated to go further. In the case of dog handlers, they may consider that they are already doing their best. In the case of equine therapists, they are probably facing a reality that is hard to change: structure of the stables, lack of research about how to evaluate the well-being of a horse...

Mutual benefits

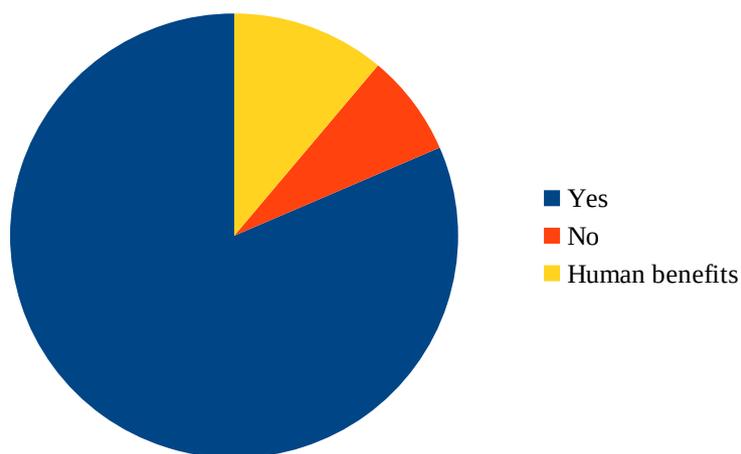


FIGURE 8 – Potential of mutual benefits for humans and animals in the context of AAI perceived by practitioners participating to our qualitative study

Responses mean:

Yes – yes, there are mutual benefits for humans and animals in the context of AAI.

No – no, there are not mutual benefits for humans and animals in the context of AAI.

Human benefits – the practitioners only mention human benefits in their answers.

Most of the participants (81,48%) show solid beliefs in the fact that the practice could benefit both humans and animals. It is interesting to note that some of the practitioners (11,11%) only answer to the question about mutual benefits according to the human needs, denying consciously or unconsciously the animals' needs.

Solutions for improvement

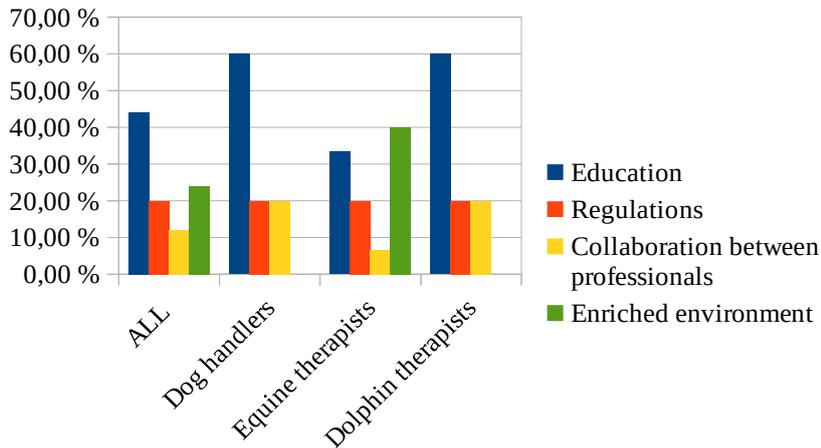


FIGURE 9 – The practitioners’ solutions to improve animal welfare in the future

Education appears as the top solution to improve the application of welfare policies by practitioners (44%) according to them. However, equine therapists (44%) see in an enriched environment, a better way to go to contribute to animal welfare than education. In a way, practitioners do recognize that their sector lack of training around animal welfare. It is worth remembering that equine therapists appear like the practitioners who are the most educated compared to dog handlers and dolphin therapists. In their mission towards welfare to animals they are working with, they may be at a different stage.

Conclusions

In definitive, it appears that equine therapists who represent the most educated practitioners are the most cautious about the welfare question. In our qualitative study, they clearly point out their obstacles and their reality that are not allowing them to give the best conditions to the horses they are working for.

In the case of dog handlers, they may represent the practitioners that have the most means to apply welfare policies considering their familiarity with the animals and the less specific needs of dogs compared to dolphins and horses.

Regarding dolphin therapists, the scores obtained on the questions about welfare as well as the comments of the participants let us surprised by the confidence and the faith that the welfare of dolphins participating to AAI is ensured, easy and under control. Based on the ethical issues raised previously in this study, it looks like the welfare of those animals in captivity is not seen as an issue in itself. Their answers and comments to our study are the ones that are the most focused on the human benefits and may reflect a lack of awareness and knowledge about the animal’s perspective.

Based on the scores obtained by practitioners who don't have the ownership of the animals and/or of the venue where they work, it appears that being a "non-owner" can constitute a brake to the good will of the practitioners that would like to improve the welfare of the animals they are working with.

As far as the role of the specific training is concerned, our results show that education may give more awareness to the practitioners and if we can say it like this, "less innocence" about the challenges in relation with the welfare of animals participating to AAI. This is how we could explain the rather low scores obtained by the practitioners who have followed a specific training compared to the very high scores of the practitioners who have not followed a specific training.

It is worth mentioning that we have based our conclusions on the figures obtained and on the comments collected. This is by no mean an exact analysis since it remains a qualitative study, it does not represent all the practitioners that exist and it exists a significant room for interpretation considering our knowledge of the sector.

VI. Solutions

After identifying the issues regarding the application of welfare policies by practitioners in the context of AAI and after defining the reasons behind the necessity to act, this paper aims at offering some potential solutions to improve the situation and to move forward.

Through the establishment of legal guidelines to follow, an accredited, compulsory and enriched curriculum for practitioners as well as the development close partnerships between human and animal care and the application of the concept of 3Rs in this context, it is possible to think that the AAI could offer better conditions of health and care to the animals involved.

A) Establishment of legal practice guidelines

In general, AAI are not regulated or standardized all over the world. Some best practice, recommendations and standards have been edited by NGOs and may have been spread among the operators. Since those guidelines are not binding and regulated by a legislation, their impact and their effectiveness are limited. Thus, in the Europe Union, AAI have not been part of any European Union legislation. Therefore, members states are not encouraged to regulate the sector. Consequently, AAI remain covered by animal welfare regulations in general when it comes to veterinary and sanitary regulations.

In this context, Italy appears like a unique example in the world with the creation of the Italian National Reference Centre for AAI (NRC AAI) by ministerial decree in 2009 and the approval of National Guidelines for AAI in 2015. The guidelines distinguish « *the different types of interventions, the various professional figures of the multidisciplinary team and their respective training paths; they also define the requirements of the facilities delivering AAI, the animal species involved and the operating procedures of the interventions. All this is done in view of an increased standardization of operational protocols and the improvement of the quality of life of all the stakeholders.* »¹⁰³ Specific sanitary and behavioural requirements must be met and some special training to work with the animals is required. It can also be read that “*the involvement in AAI represents a work activity that can be stressful for the animals*” (Italian National Guidelines for AAI, 2015, p. 26), illustrating that an ethical reflection is behind the text and that a great attention has been given to animal welfare. Recommendations to collaborate with experts to assess animals’ physiological and behavioural variations have been made. Regarding the facilities in which AAI are delivered, some structural requirements that should guarantee health and safety for animal and

¹⁰³ Italian health authority and research organization for animal health and food safety
<<https://www.izsvenezie.com/italian-national-guidelines-for-aa/>> (consulted on 24/07/2020)

humans need to be met (Italian National Guidelines for AAI, 2015, pp. 21–22). Additionally practitioners must register with the Local Health Unit.

It is worth mentioning that Norway has elaborated some guidelines related to AAI in cooperation with the Directory of Health, Norwegian Centre of Anthrozoology, the Norwegian Kennel Club and the Norwegian Food Safety Authority. It has been specified that people who are involved in AAI have to respect the rules for animal welfare and dog owner responsibilities. However, those regulations only concern dogs¹⁰⁴.

Further specific regulation in relation with AAI have been found but the legislation aims at providing more safety to humans. Thus, in Lithuania, the legislation of dolphin therapy includes norms of hygiene and safety¹⁰⁵The emphasis on animal welfare is rare.

As far as the case of Italy is concerned, it is still possible that practitioners don't strictly observe the rules but it brings some awareness to the general public, it gives power to the public to distinguish high and low quality AAI projects and trainings and it forces the institutions - that is to say, the Ministry of Health, the Regions, the Local Health Units and the NRC AAI- to pay a systematic attention to the sector.

If there is always a room for improvement, the Italian agreement constitutes so far the best legal model to ensure the application of welfare policies in the context of AAI.

B) Towards an accredited, compulsory and enriched curriculum

If we have seen that state regulations could control the practice of AAI, it looks like the legal framework should also include some regulations about the education and the trainings of practitioners in the field. Asking to each professional involved in the design and in the realization of AAI to follow a specific training seems the way to go forward.

Thus, in Italy, it is specifically required to practitioners to have a specific diploma or training in relation with AAI. In the case of Switzerland, the animal welfare legislation supports the necessity of educating and training those who own and use animals in a professional context ((Ordonnance sur les formations en matière de protection des animaux, OFPAN)¹⁰⁶.

¹⁰⁴ Wohlfarth & Sandstedt (2016), *Animal Assisted Activities with Dogs - Guideline for basic requirements & knowledge*, Janusz Korczak Pedagogical University in Warsaw

¹⁰⁵ David E. Nathanson, Donny de Castro, Heather Friend & Marcia McMahon (1997) Effectiveness of Short-Term Dolphin-Assisted Therapy for Children with Severe Disabilities, *Anthrozoös*, 10:2-3, 90-100, DOI: [10.2752/089279397787001166](https://doi.org/10.2752/089279397787001166)

¹⁰⁶ Le portail du gouvernement Suisse <<https://www.admin.ch/opc/fr/classified-compilation/20080798/index.html>> (consulted 22/03/2020)

If a specific training for practitioners becomes compulsory like it is done in Italy and in Switzerland, it is worth wondering if it would be enough to ensure the application of welfare policies. As it has already been mentioned above, Scholte (2009) observes a proliferation of trainings in animal-assisted therapy and equine-assisted therapy, where each organisation has its own « ivory tower » and where the quality of the training vary a lot¹⁰⁷.

In her paper about the curriculum of equine therapy training, Shkedi, Anita (2015) recommends to raise the education bar and to stabilize pre-requisites for admission in those trainings. Encouraging critical thinking, building an understanding of equine ethology as well as enhancing an effective horse handling and a solid knowledge of horse care are also part of her recommendations¹⁰⁸.

According to our qualitative study, the necessity for practitioners to access a solid training is evoked especially in the case of horses and dogs and is actually the top solution evoked by practitioners in general to improve animal welfare in the context of AAI (**FIGURE 9**). Here are some extracts:

« Creating an educational framework for professionals seems essential. »

« Raising the levels of practitioners that are not necessarily people coming from the animal world... »

In this extract, one of the participant working with her dog Blaze, refers to the importance to be able to educate the people working with her as well as the participants of the sessions: *« It's important to be able to tell signs of stress or uncomfortableness with your animal so you can remove them from the situation and educate others who are working with the dog to watch for the signals as well. I mentioned earlier that all of my students know that if Blaze removes himself from our session we are not to follow him or try to touch him. I usually will give him a few minutes and call him over, and if he's ready he will come. If he doesn't respond to his call then we know he needs more time to relax. I also educated the students on places where it is safe to pet Blaze and also times (if we're walking to class students are not allowed to jump out of their line to touch Blaze).»*

Based on our literature review, specific training in dolphin therapy is not a question raised. One of our participants to the qualitative study have followed a specific training in dolphin therapy. One of the participant of our qualitative study evokes the needs of a more professional approach to ensure the application of welfare policies among other reasons but the participant does not specify that a professional approach comes with a specific training. In definitive, in the case of dolphins, the necessity of a specific training to ensure the application of welfare policies remains blurry.

¹⁰⁷ Scholte, Sarah. (2009). Animal-assisted therapy and equine-assisted therapy/learning in Canada: Surveying the current state of the field, its practitioners, and its practices. 10.13140/RG.2.2.18766.10566.

¹⁰⁸ Shkedi, Anita (2015), Equine Assisted Activities or Therapy: Towards a Future Curriculum. University of Derby <http://hdl.handle.net/10545/621346>

Ensuring an adequate and qualifying training to practitioners may involve the creation of official accreditation that distinguishes the most appropriate trainings than others in and that ensures a certain level of professionalism, deontology and ethics of the practitioners. However, in most countries, the profession of practitioner in AAI is not recognized and therefore, diplomas and certifications are not official. Fine, A. H., Beck, A. M., & Ng, Z. (2019) insist in the need of « *specific and mandated education and training to ensure effective, safe, and reliable treatment options* » as well as continuing education to take AAI to the next level¹⁰⁹.

In definitive, not only a specific training in AAI must be required to practitioners, the creation of pre-requisites for admissions as well as official accreditation are needed. By regulating and structuring the education of practitioners, we can imagine that it will foster dynamic networks between practitioners in AAI and it will allow the sector to professionalize itself.

C) Close partnerships between professionals

Close collaborations and partnerships between human and veterinary medicine also seem essential to balance the needs of human clients with respect for the needs of the animal. Thus, collaborations between professionals remain one of the solutions evoked by the practitioners of our qualitative study (**FIGURE 9**) and encouraged in our literature review.

As far as the collaboration with veterinarians is concerned, it is obviously an important cooperation to ensure safety and well-being for animals. In a paper published in 2016, Linder, Mueller, Gibbs, Siebens & Freeman (2016). call for changes in the curriculum of future veterinarians: they report some significant gaps of knowledge of future veterinarians about AAI that prevent them to make appropriate physiological and behavioural assessments of animals involved in AAI¹¹⁰. For Schaffer (2018), the potential of an appropriate support coming from veterinarians could enhance human-animal relationships in a promising way. She defines here the responsibilities that veterinarians could take on : « *Entry-level veterinarians should be prepared to: (1) assure that animals who provide AAT/AAA are healthy enough to visit nursing homes, hospitals, or other institutions; (2) promote behaviour testing that selects animals who will feel safe, comfortable, and connected; (3) advise facilities regarding infection control and ways to provide a safe environment where the animals, their handlers, and the people being visited will not be injured or become ill; and (4)*

¹⁰⁹ Fine, A. H., Beck, A. M., & Ng, Z. (2019). The State of Animal-Assisted Interventions: Addressing the Contemporary Issues that will Shape the Future. *International journal of environmental research and public health*, 16(20), 3997. <https://doi.org/10.3390/ijerph16203997>

¹¹⁰ Linder, Deborah & Mueller, Megan & Gibbs, Debra & Siebens, Hannah & Freeman, Lisa. (2016). The Role of Veterinary Education in Safety Policies for Animal-Assisted Therapy and Activities in Hospitals and Nursing Homes. *Journal of Veterinary Medical Education*. 44. 1-5. 10.3138/jvme.0116-021.

*advocate for their patients and show compassion for their clients when animals are determined to be inappropriate participants in AAT/AAA programs. »*¹¹¹

In the case of horses, Goodwind (1999) points out the role of other animal expert such as ethologists to participate to the appropriate application of welfare policies: “*The evolving horse-human relationship from predation to companionship, has resulted in serial conflicts of interest for equine and human participants. Only by understanding the nature and origin of these conflicts can ethologists encourage equine management practices which minimise deleterious effects on the behaviour of the horse*”¹¹².

Not only veterinarians who are well-aware of the methods practised in AAI can control the health and the well-being of animals, they will also be more capable of researching on innovative methods of animal welfare assessment and cognition, in order to inform the best practice standards and to ensure the welfare of these animals. In the case of horses, it has been found that assessing a horse’s reaction during a therapeutic program remains difficult and that more reliable methods were needed¹¹³ to determine the short- and long-term consequences of horses participating in equine programs¹¹⁴. In the case of dolphins, Clegg, Borger-Turner and Eskelinen (2015) designed “*the C-Well, an overall welfare assessment index for captive bottlenose dolphins, with 11 criteria and 36 species*”, a specific welfare assessment for captive mammals. Thinking and promoting an animal welfare quality assessment adapted to different species in question is probably the way to go¹¹⁵.

For Gorman (2019), practising ethical interspecies relationships also need to come with the collaboration of medical humanities. As we have seen previously, the synergy between human and veterinary medicine could open up a lot of possibilities like One Health. Thus, balancing the needs of humans and animals in the context of AAI could lead to the concept of One Health that aims at protecting the health and well-being of both animals and humans. In the case of Italy that remains a model in terms of legislation in relation with AAI, it is worth noticing that human and veterinary

¹¹¹ Schaffer, Caroline. (2008). Enhancing Human-Animal Relationships through Veterinary Medical Instruction in Animal-Assisted Therapy and Animal-Assisted Activities. *Journal of veterinary medical education*. 35. 503-10. 10.3138/jvme.35.4.503.

¹¹² Goodwin, Deborah. (1999). The importance of ethology in understanding the behaviour of the horse. *Equine veterinary journal*. Supplement. 31. 15-9. 10.1111/j.2042-3306.1999.tb05150.x.

¹¹³ De Santis, Marta & Contalbrigo, Laura & Borgi, Marta & Cirulli, Francesca & Luzi, Fabio & Redaelli, Veronica & Stefani, Annalisa & Toson, Marica & Odore, Rosangela & Vercelli, Cristina & Valle, Emanuela & Farina, Luca. (2017). Equine Assisted Interventions (EAIs): Methodological Considerations for Stress Assessment in Horses. *Veterinary Sciences*. 4. 44. 10.3390/vetsci4030044.

¹¹⁴ Gehrke, Ellen & Baldwin, Ann & Schiltz, Patric. (2011). Heart Rate Variability in Horses Engaged in Equine-Assisted Activities. *Journal of Equine Veterinary Science - J EQUINE VET SCI*. 31. 78-84. 10.1016/j.jevs.2010.12.007.

¹¹⁵ Clegg, Isabella & Eskelinen, Holli & Richardson, Jill. (2015). C-Well: The Development of a Welfare Assessment Index for Captive Bottlenose Dolphins (*Tursiops truncatus*). *Animal welfare (South Mimms, England)*. 24. 267-282. 10.7120/09627286.24.3.267.

medicine have both been placed under the Ministry of Health since 1958. On more practical level, the synergy between human and veterinary medicine could take form of collaborations in research to produce more precise and deeper investigations about the impact of interspecies relationships on both sides. The collaboration could also take place during sessions like the diamond model suggested the first part of our investigation shows resulting in the standardization of a multidisciplinary team where a medical professional works with the assistance of an animal expert¹¹⁶. This way, both animals and humans benefit from professional attention and care.

Finally, if AAI get attention and consideration from medical humanities, it also mean that treatments may become reimbursed and funded. Not only it will allow AAI projects to become more stable and secure, it is likely to protect animals participating to AAI from the current precarity of the sector.

D) Application of 3Rs principles

In the context of AAI, we are far from animal experimentation and it would be incorrect to associate laboratory animals with animals participating to AAI. However, the ethical standards of 3Rs developed by Russell and Burch in 1959¹¹⁷ encompassing dimensions such as housing, caring and handling for more humane experimental technique appear to fit in the context of AAI. In this part of the investigation, we will explore how the concepts and the ethical standards called 3Rs , that is to say, Refinement, Reduction and Replacement, can be applied in the context of AAI to give a direction to increase humanity and to maximize benefits for both humans and animals.

In the case of horses and dolphins, refining the way AAI are carried out constitutes the first solution evoked in our qualitative study. Respecting the animal, adapting the environment to its needs, giving animals some time where they are free, giving the opportunity to the animal to become a proactive part of the session through « empowerment » are some of the ideas that are developed by the participants of our qualitative study when they are asked about the changes that should happen in the sector. Here are some extracts:

¹¹⁶ De Santis, Marta & Contalbrigo, Laura & Simonato, Martina & Ruzza, Mirko & Toson, Marica & Farina, Luca. (2019). Animal assisted interventions in practice: mapping Italian providers. *Veterinaria Italiana*. 54. 323-332. 10.12834/VetIt.1226.6831.1.

¹¹⁷ Russell WMS, Burch RL. 1959. (as reprinted 1992). *The principles of humane experimental technique*. Wheathampstead (UK): Universities Federation for Animal Welfare.

« *Let horses leave outside and offer boxes as an option they are free to choose. Developing the concept of active stabling¹¹⁸ seem to be the best way to answer the needs and the natural behaviour of horses.* »

« *Life conditions of animals need to be changed. They need to live outside with their herd.* »

« *Mobilizing resources so facilities for dolphins are more humane in terms of pool sizes and captivity parameters.*»

Refinement could also be mean handling animals differently during the encounter between participants and animals. Studies show that people observing animals often encourage people to relax and to develop attention¹¹⁹. Instead of promoting the physical touch towards animals, sessions could take a different form where animals have more freedom to move and benefit from non-invasive encounters.

Applying the concept of reduction as it is developed in the ethical standards of the 3Rs will consist of reducing the number of animals taking part to AAI through a more acute selection of animals participating to AAI as well as reducing the time length and the workload in the context of AAI.

Regarding the reduction of the animals used in AAI, we actually found a lot of opinions that recommend not to use non-domestic species: « *Non-domestic species should not be used for AAA/T or assistance work except under exceptional circumstances (e.g. wildlife rehabilitation), and where appropriate care can be guaranteed.* »¹²⁰ By consulting reports from NGOs and societies, the same recommendation is repeated. Here are some extracts of a report by the Whale and Dolphin Conservation Society in 2007¹²¹: « *it is unlikely to adequately meet the psychological or physical welfare needs of either human participants or dolphins.* » « *it is highly recommended that the practice of dolphin assisted therapy be terminated.* » Besides, some governments have position themselves in favour of the termination of this practice. The Australian Senate Select Committee on Animal Welfare (1985) had initiated a first step by declaring that « *the benefits of oceanaria in Australia for humans and Cetacea are no longer sufficient to justify the adverse effects of capture*

¹¹⁸ Active stabling « *allows the horses to move freely in paddock and stable area. Each horse has a chip which communicates with the sensors placed on the requisite point and it also sends information to the operating computer. Feeding is done by feeding stations, in which a number and composition of the feed can be set for each individual animal.* » Zejdová, P. (2019). System of active stabling for horses. Journal of Animal Science of bih. 1. 10.7251/JAS1502051Z.

¹¹⁹ Katcher, A. H., Friedmann, E., Beck, A. M., and Lynch, J. J. (1983). Talking, looking, and bloodpressure: Physiological consequences of interaction with the living environment. In “*New Perspectives on Our Lives with Animal Companions*” (A. H. Katcher and A. M. Beck, eds.), pp. 351–359. University of Pennsylvania Press, Philadelphia, PA.

¹²⁰ Serpell, James & Coppinger, R. & Fine, Aubrey & Peralta, J.M.. (2010). Welfare Considerations in Therapy and Assistance Animals. 10.1016/B978-0-12-381453-1.10023-6.

¹²¹ Whale and Dolphin Conservation <<https://uk.whales.org/policy/wdc-publications-and-reports/>> (accessed 26/07/2020)

for captivity » recommending to stop the practice. In Italy, in the Italian National Guidelines for AAI, it is stated that only domestic species should establish social relationships with humans (dogs, horses, donkeys, cats and rabbits) (Italian National Guidelines for AAI, 2015, p. 25), excluding non-domestic species such as dolphins¹²². In order to answer those concerns, reducing the number of dolphins taking part to the practice of AAI and selecting the most adaptable animals to participate AAI could constitute some preliminary answers.

The concept of reduction could also be declined in terms of reduction of the workload and of the time length for animals involved. Besides, a research dated from 2006 had already suggested to reduce the workload of horses when they work with some particular patients: “*at-risk children caused more stress to the horses, suggesting that the time horses are ridden by at-risk children should be limited both daily and weekly.*”¹²³

The question of replacement developed in the ethical standards of the 3Rs is also a direction that has been evoked in the literature. In the context of AAI, it will consist of replacing the animals participating in AAI. Thus, Stumpf, Eva & Breitenbach, Erwin. (2014) acknowledge that animatronic dolphins might be suitable for therapeutic programs¹²⁴. Candelieri (2018) also opts for “*a replacement by more suitable treatment*” in the case of dolphins¹²⁵. Kieson, Emily & Abramson, Charles. (2016) argue that « *the use of horses in physical therapy or as a rhythmic tool for psychotherapy suggests that there may be cause to develop mechanical horses that can produce the same physical benefits as horseback riding* »¹²⁶. Finally, the use of stuffed animals for hospitalized children¹²⁷ and adolescents¹²⁸ helping young patients to cope and to express feelings has shown

¹²² Italian health authority and research organization for animal health and food safety
<<https://www.izsvenezie.com/italian-national-guidelines-for-aa/>> (consulted on 24/07/2020)

¹²³ Kaiser, Lana & Heleski, Camie & Siegford, Janice & Smith, Katharine. (2006). Stress-related behaviors among horses used in a therapeutic riding program. *Journal of the American Veterinary Medical Association*. 228. 39-45. 10.2460/javma.228.1.39.

¹²⁴ Stumpf, Eva & Breitenbach, Erwin. (2014). Dolphin-Assisted Therapy with Parental Involvement for Children with Severe Disabilities: Further Evidence for a Family-Centered Theory for Effectiveness. *Anthrozoos: A Multidisciplinary Journal of The Interactions of People & Animals*. 27. 10.2752/175303714X13837396326495.

¹²⁵ Candelieri, Irene. (2018). Healing and Caring in Dolphin-Assisted Therapy: Criticisms of Effectiveness and Ethical Issues. *Gestalt Theory*. 40. 323-335. 10.2478/gth-2018-0024.

¹²⁶ Kieson, Emily & Abramson, Charles. (2016). Equines as tools vs partners: a critical look at the uses and beliefs surrounding horses in equine therapies and argument for mechanical horses. *Journal of Veterinary Behavior: Clinical Applications and Research*. 15. 94-95. 10.1016/j.jveb.2016.08.067.

¹²⁷ Koukourikos, K., Tzehe, L., Pantelidou, P., & Tsaloglidou, A. (2015). THE IMPORTANCE OF PLAY DURING HOSPITALIZATION OF CHILDREN. *Materia socio-medica*, 27(6), 438–441.
<https://doi.org/10.5455/msm.2015.27.438-441>

¹²⁸ Jaffe, Steven & Franch, Katherine. (1986). The Use of Stuffed Animals by Hospitalized Adolescents: An Area for Psychodynamic Exploration. *Journal of the American Academy of Child Psychiatry*. 25. 569-73. 10.1016/S0002-7138(10)60019-2.

great results. Evram (2018)¹²⁹ talks about the “teddy bear therapy” that has been used by professionals of the mental health field to explore the inner world of children in psychotherapy.

Even if the ethical concepts of 3Rs have not been thought in the context of AAI, it gives directions to think of the future of AAI in a more humane perspective and in a sense where the application of welfare policies could fit in the practice. However, it is worth noticing that it seems more applicable in the case of horses and dolphins than in the case of dogs.

¹²⁹ Evram, Gozde. (2018). A New Approach to Child Psychotherapy: Teddy Bear Therapy. *Global Journal of Psychology Research: New Trends and Issues*. 8. 158-162. 10.18844/gjpr.v8i4.3840

VII. Recommendations and guidelines

In this paper, we have done our best to identify a number of potential issues and obstacles to animal welfare in the context of AAI. Our role is not to blame or to denounce practitioners in the field. As we have seen in our study, even when practitioners have a good will to apply welfare policies, a lot of situations make it difficult or impossible to ensure the welfare of the animals. Given the current context of the sector of AAI, we see in the following recommendations, appropriate guidelines for practitioners to consider and to start with. Our recommendations have been established according to the needs of the animals of our study, that is to say, dogs, dolphins and horses.

Guidelines in the context of AAI with dogs

1. Those involved in conducting AAI and present during AAI must educate themselves regarding the needs of animals participating to those activities. **Experience, specific trainings and continuing education** are required to identify social and behavioral needs, to avoid risks of mistreatment and to act accordingly.
2. During **the process of selection of dogs** to participate to AAI, AAI practitioners should bear in mind that the history of the animal, their previous experiences and their preferences are very important information to collect before making a decision. Ideally, some special precautions are taken in the case of shelter dogs.
3. During the process of **training and preparing dogs** for AAI, non-invasive and non-aversive methods should be adopted in order to cause minimal distress to the animals and to ensure that they have minimal impact on their well-being. AAI practitioners need to be able to assess the internal motivation of the dog to perform the specific task, to acknowledge when a dog suffer from anxiety, fear and stress and to adapt trainings according to behavioral needs.
4. More attention should be given to **the design and the construction of animal-friendly venues** and facilities for AAI animals, particularly to a securizing floor where dogs need to walk on, the presence of water area, the existence of a proper refuge area and an appropriate temperature in the room.
5. AAI practitioners need to assess in which extent **the physical contact and touch** with participants is bearable for the dogs they are working with, to recognize the signs of stress when they appear and to act accordingly. Ideally, sessions should be terminated in some cases before signs of stress become a source of risks for the participants.
6. AAI practitioners need to plan in advance their sessions, giving time to dogs to adapt to the environment of the sessions as well as finding some references through the presence of regular staff and participants and **the establishment of habits and routines**, in order to create the most familiar atmosphere and to cause minimal distress.
7. AAI practitioners need to set **realistic expectations in terms of workload** and to define the time limit of sessions, the appropriate number of AAI sessions for each dog as well as some periods of break and resting time in order to have a minimal impact on their well-being.
8. AAI practitioners and handlers need to consider and look after their **mental health**, to understand that it may have an impact on the stress of the animal they are working with, to recognize emotional contagion when it appears and to act accordingly. Ideally, sessions should be rescheduled if symptoms are manifested.
9. **In residential and visitation programs**, the care and the welfare of dogs should be **the responsibility of one or more staff**. The duties regarding the animal should be clearly defined to ensure a proper supervision and to avoid to put the animals' welfare at risk.
10. Efforts and resources should be dedicated to develop **collaborations with professionals in the field** (other practitioners) as well as professionals in human and veterinary medicine through the presentation of their work, their availability to participate and/or to conduct investigations and their ability to receive feedback from those exchanges.
11. **The question of the retirement** of the dogs participating to AAI must be taken seriously by AAI practitioners and handlers in order to anticipate it, to prepare the transition from working life into a satisfactory retirement lifestyle and to avoid abrupt loss and social human bonds for the animal.
12. AAI practitioners must be aware that **some profiles of participants** – that is to say participants using wheelchairs and some medical material as well as participants showing active and aggressive behaviours can represent a potential risk for harm, stress and discomfort for the dogs and may need to be avoided. Ideally, sessions with this profile of participants should be limited in time and frequency.
13. In case of **group sessions**, AAI practitioners must consider that being in presence of several people can have a direct effect on the anxiety of dogs. Ideally, the group session is conducted by more than one professional to ensure an accute observation of the interactions between humans and animals.

Guidelines in the context of AAI with horses

1. Those involved in conducting AAI and present during AAI must educate themselves regarding the needs of animals participating to those activities. **Experience, specific trainings and continuing education** are required to identify social and behavioral needs, to avoid risks of mistreatment and to act accordingly.
2. During **the process of selection of horses** to participate to AAI, AAI practitioners should bear in mind that the history of the animal, their previous experiences and their preferences are very important information to collect before making a decision. Ideally, some trial sessions should be planned.
3. AAI practitioners need to plan in advance their sessions, to prepare horses to the environment of the sessions (material, arena...) as well as finding some references through the presence of regular staff and participants and **the establishment of habits and routines**, in order to create the most familiar atmosphere and to cause minimal anxiety to horses.
4. More attention should be given to **the design and the construction of animal-friendly venues** and facilities for AAI animals, particularly to group housing, opportunities for foraging and grazing and outdoor paddock presenting a variety of plant materials such as mixed grasses, bushes, herbs, medicinal plants and small trees.
5. AAI practitioners need to set **realistic expectations in terms of workload** and to define the time limit of sessions, the appropriate number of AAI sessions for each horse as well as some periods of break and resting time in order to have a minimal impact on their well-being. Ideally, in horse-riding schools, AAI practitioners must be aware of the schedule of each horse participating to AAI sessions and to find a balance between their « horse-riding » work and their « therapy » work.
6. AAI practitioners must be aware that **some profiles of participants** – that is to say participants presenting neuromotor and psychological disorders as well as participants showing active and aggressive behaviours can represent a potential risk for harm, stress and discomfort for the horses and may need to be avoided. Ideally, sessions with this profile of participants should be limited in time and frequency.
7. **The question of the liberty** of the horses during the session as well as the use of material such as harnesses and bites must be studied and explored. Ideally, horses could be offered the opportunity to act in liberty and the use of horse-riding material should be kept to the minimum through the choice of ethological halters and saddles.
8. AAI practitioners must be aware of the difficulty of assessing a horse's reaction in the context of AAI and must practice **accute observation** of the horses participating to AAI in order to detect any stress signs. Ideally, they must be supported by an animal expert during the session and must solicitate the opinions of ethologists and veterinarians when doubts about the well-being of the animals remain.
9. Efforts and resources should be dedicated to develop **collaborations with professionals in the field** (other practitioners) as well as professionals in human and veterinary medicine and ethologists through the presentation of their work, their availability to participate and/or to conduct investigations and their ability to receive feedback from those exchanges.
10. In connexion with participants, AAI practitioners should take on the responsibility of educating them and their families about the **consideration of the animal** as a being and of **promoting an attitude of respect**.
11. In case of **group sessions**, AAI practitioners must consider that being in presence of several people can have a direct effect on the anxiety of horses. Considering the size of horses and their sensitivity, it is important to choose an appropriate space that allows the animals to move and to feel secured and to maintain a global awareness of the situation. Ideally, the group session is conducted by at least 2 professionals.
12. If AAI practitioners work with their own horses and have set up their own business, a **business plan** must be established to ensure ongoing expenses in relation with the animals involved.

Guidelines in the context of AAI with dolphins

1. Those involved in conducting AAI and present during AAI must educate themselves regarding the needs of animals participating to those activities. **Experience, specific trainings and continuing education** are required to identify social and behavioral needs, to avoid risks of mistreatment and to act accordingly.
2. **Solid communication and collaboration** should be established by the **AAI practitioners with dolphin trainers** in order to balance the needs of humans and animals. Ideally, AAI practitioners are aware that they have a role to play in the animals' well-being by participating to the decisions about their selection, their training and their care.
3. To abstain from capturing dolphins in the wild for AAI, practitioners should promote and rely on **a successful captivity breeding program** based on facility capacity.
4. AAI practitioners should be able to work with **a small number of dolphins** according to the principle of reduction of the 3Rs. Ideally, the intention to reduce the number of dolphins involved in AAI is shared with the management team of the dolphinarium.
5. More attention should be given to **the design and the construction of animal-friendly venues** and facilities for AAI animals. Ideally, the pool size is appropriate to animals's needs, captivity parameters are thought according to the needs of the animals and a refuge area exists.
6. In terms of **profiles of participants**, children must be prioritized over adults that tend to generate more stress for dolphins.
7. AAI practitioners in collaboration with dolphin trainers need to assess in which extent **the physical contact and touch** with participants is bearable for the dolphins they are working with, to recognize the signs of stress when they appear and to act accordingly. Ideally, contacts should be limited and sessions should be terminated in some cases before signs of stress become a source of risks for the participants.
8. In connexion with participants, AAI practitioners should take on the responsibility of educating them and their families about **the respect of the animal** and of anticipating any sign of aggression towards the animals.
9. AAI practitioners need to set **realistic expectations in terms of workload** and to define the time limit of sessions, the appropriate number of AAI sessions for each dolphin as well as some periods of break and resting time in order to have a minimal impact on their well-being.
10. Efforts and resources should be dedicated to develop **collaborations with professionals in the field** (other practitioners) as well as professionals in human and veterinary medicine through the presentation of their work, their availability to participate and/or to conduct investigations and their ability to receive feedback from those exchanges.
11. **Campaigns against the anthropomorphism associated with dolphins** and in favor of dolphins' welfare should be initiated and promoted by AAI practitioners in order to encourage the foundation for welfare decisions.

VIII. Conclusion

This paper aimed at providing the key to understand the current practices of AAI from an animal welfare perspective. So far, it looks like the sector is dominated by anthropocentric approaches where it is difficult for practitioners to apply welfare policies even when they have the good will to do so. It looks like those professionals have to face responsibilities on their own with a crucial lack of resources: for now, they cannot count on the support from animal and human care professionals, they are pressurized to give positive results from the general public and the media, they often face insecure employment or income, they generally do not benefit from the attention and the support from state institutions, they may lack experience, knowledge and training, they don't manage to create an unified front of the profession and the lack of scientific evidences around their practice do not help them to appear legitimate. This context makes the application of welfare policies difficult and unreliable or if it is done, it is not promoted.

Looking more specifically to the 3 species studied in our investigation, difficulties to ensure the application of welfare policies for dogs, horses and dolphins are diverse and different and the possibilities of the practitioners to apply welfare policies vary a lot from one species to the other. Dogs are likely to suffer from physical injuries and stress because of heavy workload, unstable and unsuitable environment as well as invasive trainings where the role of the practitioner is crucial to correct, to adjust and to modify the practice in order to ensure the application of welfare policies. As far as horses are concerned, they are likely to suffer from stress and anxiety caused by their housing in boxes and the non-detection of signs of stress and pain. In this case, practitioners can face situations where they have a very limited control to apply welfare policies since they may not be responsible of the stables or own the horses. Moreover, the education in horse ethology given to practitioners is often not sufficient and seem to require more investigation. In the case of dolphins, the practice in captivity combined with intensive trainings and a constant turnover of patients lead to serious ethical and welfare problems. Dolphins therapies taking place in dolphinariums involve some conflicts of interest where the practitioner seems to have little knowledge and power to influence a significant application of welfare policies.

In order for those professionals to better develop their interventions from an animal welfare perspective, it has been identified best practices and guidelines based on welfare principles to guarantee good feeding, good housing, good health and appropriate behaviour. Ensuring the application of welfare policies becomes a possible mission for practitioners when they have been trained properly in animal care and handling, when they have been invited to think critically in

order to balance the needs of humans and animals and when they have gained enough experience to shape deontology and ethics. Being aware of concepts such as the ethical standards of the 3Rs can give them a framework to work with and to keep animal welfare at the core of their practice. Nevertheless, a serious application of welfare policies by practitioners can only happen with some support and some help at different levels.

Indeed, close collaborations with animal and human medical teams to open up possibilities of further investigation in the field of AAI as well as to establish preventive medical strategies for the animals involved appear essential to support the application of welfare policies by practitioners. Additionally, the establishment of a legal framework initiated by state government to control standards and best practices as well as the education of the practitioners is needed to force and to stimulate those professionals to embody animal welfare values and principles.

If efforts are gathered in this way, it could actually lead the sector of AAI to become more legitimate, more professional and more stable and to constitute a field of application for One Health by optimizing the health of both humans and animals.

Surely, the recommendations of this paper are not definitive: on the contrary, there is room for improvement in understanding how the application of welfare policies could be handled better by practitioners. We have based our investigation on a literature review and on a qualitative study that both have their limits. Our study has given a broad overview of the situation selecting an international literature review. Given the different situations that can occur from one country to the other in terms of legal, educational, medical and veterinarian system, our findings are likely not to be applicable by all the practitioners working in AAI but can suggest at least some directions and trends to look at. Furthermore, our qualitative study have been sent to participants who are mainly based in France, in Spain and in the United States. We have also restricted the study to 3 species (dogs, horses and dolphins) meaning that our observations may not concern all the animals involved in AAI. Again, the results cannot be taken as representative of all the practitioners working in AAI.

Finally, it is worth mentioning that when we are taking Italy as a legal model in the field of AAI, we must recognize that a lot of legal steps are probably necessary to take before regulating AAI, especially laws in favour of animal welfare in general.

To ensure the application of welfare policies for animals involved in AAI, we have chosen to focus on the regulations that could force and motivate the practitioners to take on this responsibility and we deliberately left on the side how animals involved in AAI could obtain the rights to be protected and to receive a compensation for their work. In the current context of animal law, it appeared more

strategic to explore how regulations and controls could be improved for animals via the obligations and duties of the practitioners in order to protect animals rather than debating about the legal status of animals as worker. However, the idea of establishing rights to animals has already been raised, especially in the case of service animals and guide dogs. The right to retirement for service animals and guide dogs is, for example, discussed¹³⁰. Given the similar nature of the work given by animals involved in AAI, service animals and guide dogs, it is worth imagining that any project to obtain rights for those animals could bring them together in a special category where their work towards humans is recognized, protected and compensated. Consequently, this investigation could be continued by exploring how animals involved in AAI could enter in the same category as service animals and dogs in order to obtain rights and compensation for the work they do. The more, the merrier and the stronger!

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X. Appendices

Appendix 1 – English language survey

INSTRUCTIONS:

Thank you for taking the time to participate in this survey. For some of the questions, you will be required to select a response by placing a check mark in the appropriate space. For certain questions, a longer answer may be required; you may respond in the space provided.

PARTICIPANTS:

This survey focuses specifically on the practitioners that foster personal growth and therapeutic development with the animals selected for this research, that is to say, with dogs, horses and dolphins.

PURPOSE OF THIS STUDY:

This research is being conducted to document the reality faced by animal therapy practitioners towards the welfare of the animals they are working with as well as providing valuable information to stakeholders. This study, the first of its kind, will focus on discovering and identifying attitudes, current practices of the practitioners, as well as understanding the challenges and needs of this community.

This research is being conducted by Antonia Eraud to meet the requirements for a master's degree dissertation in Animal Law at the Universidad Autónoma de Barcelona. Antonia Eraud is conducting this research under the supervision of Dr José Cunilleras.

WHAT IS INVOLVED:

If you agree to voluntarily participate in this research, your participation will include a time commitment of approximately 15-20 minutes, to fill out the web-based survey. Please answer these questions honestly and to the best of your knowledge.

PRIOR RELATIONSHIPS:

Antonia Eraud may have a relationship to potential participants, as a colleague, student, or professional. If you feel obligated to participate due to a preexisting relationship with the researcher, we ask that you do not do so.

BENEFITS:

* Benefits to knowledge: Since there is very little accessible knowledge about the field , this study will fill a major gap in the literature and knowledge.

*Benefits to society: Documenting the field and publishing the results will allow other individuals access to this information, including other practitioners who wish to learn more about the profession, individuals who would like to pursue this as a career path, policy makers and government officials, as well as the general public, who may be interested in accessing these services for themselves or their loved ones.

* Benefits to you, the participant: This research will hopefully shed light on the work you do, thereby increasing your visibility in the academic literature and hopefully generating more interest about your work. It is hoped that this study will give you a voice.

ANONYMITY AND CONFIDENTIALITY:

Your confidentiality and the confidentiality of the data will be protected by the fact that you will NOT be asked to provide your name anywhere in the survey.

DISSEMINATION OF THE RESULTS:

It is anticipated that the results of this study will be shared with others through conference presentations, publication in journal articles or the media, and thesis.

A – Professional, educational and academic background

1. What is your academic and educational background?
2. What is your professional experience in animal therapy?

B – Professional practice

3. How do you select animals that work with you?
4. How do you make animals work with you?
5. Describe your current practice as a practionner of animal therapy (number of sessions every week, planning of the sessions, role of the animal, lenght of the session, your role in the session,...)
6. How important do you perceive animal welfare within your work?
7. How easy do you perceive animal welfare within your work?

8. In which extent do you think that relations between participants and animals might result in a level of mutual proliferation?

C- Needs & challenges

9. In the near future, how likely are you to improve animal welfare within your job?

10. What do you believe is necessary for the field of animal therapies to evolve in order to ensure the application of animal welfare policies?

Appendix 2 – Spanish language survey

INSTRUCCIONES :

Muchas gracias por participar en esta encuesta. Para algunas preguntas, puede seleccionar una respuesta seleccionando la casilla. Para otras preguntas, una respuesta con más detalles estará requisita. Podrá usar el espacio ofrecido para escribir.

PARTICIPANTES :

Esta encuesta está dirigida a los terapeutas con animales en el contexto de un proceso de psicología, de salud mental, de trabajo social, de educación, de psiquiatría o de crecimiento personal. Si no interviene en los contextos mencionados, por favor no participen en esta encuesta.

OBJETIVO DE LA ENCUESTA :

El objetivo de esta investigación es documentar la realidad que enfrentan los terapeutas con animales en cuanto al bienestar de los animales con quien trabajan, y reunir las informaciones pertinentes y útiles a los actores del sector. La encuesta se enfocará en identificar las actitudes, las intenciones y las prácticas de los terapeutas en cuanto al bienestar animal, y en entender las necesidades y los desafíos de esta comunidad. Esta encuesta está conducida por Antonia Eraud y supervisada por el Dr José Cunilleras con el objetivo de contestar a los requisitos del master en derecho animal de la Universidad Autónoma de Barcelona.

DETALLES:

Necesitará entre 5 y 10 minutos para completar esta encuesta. Por favor, conteste de manera honesta según sus conocimientos.

RELACIONES CON LA INVESTIGADORA :

Antonia Eraud puede tener una relación existente con algunos participantes como compañera de trabajo, estudiante o profesional. Si se siente obligada/o a hacer la encuesta por causa de esta relación existente, le pediremos no hacer la encuesta.

VENTAJAS A PARTICIPAR EN ESTA ENCUESTA :

* Considerando las pocas publicaciones que existen sobre los efectos de las terapias sobre los animales de terapia, va a ayudar a rellenar un vacío documentario significativo.

* Publicar los resultados va a permitir a las personas interesadas en este tema a encontrar informaciones más fácilmente. Entre los beneficiarios, se incluyen los profesionales del sector, las personas que desean formarse en este sector, los responsables públicos y el público que quiere recurrir a estos servicios para ellos o para su familia.

* Aumentar la visibilidad, la presencia y la legitimidad de su profesión en la literatura académica. Esta encuesta le permite expresarse.

CONFIDENCIALIDAD:

La confidencialidad de sus datos estará protegida y su nombre no va a aparecer. El análisis de los resultados estará hecho sin poder saber quiénes son los individuos que han respondido.

DIFUSION DE LOS RESULTADOS :

Deseamos compartir los resultados de esta encuesta durante presentaciones, conferencias y artículos.

A – Educación, formación y experiencia profesional

1. ¿Cuál es su educación y su formación académica?
2. ¿Cuál es su experiencia profesional en terapias con animales ?

B- Práctica profesional

3. ¿Cómo selecciona los animales que trabajan con usted ?
4. ¿Cómo hace para que los animales trabajen con usted en una sesión de terapia ?
5. Describir su práctica como terapeuta (planning de la sesión, papel del animal, duración, su papel, número de sesiones a la semana...)

6. ¿Cuál es la importancia que da al bienestar de los animales con quien trabaja?

7. ¿En qué sentido es fácil para usted asegurar el bienestar de los animales con quien trabaja?

8. ¿En qué sentido las relaciones entre los participantes de las terapias y los animales pueden resultar en un cierto nivel de proliferación mutua?

C- Necesidades y desafíos

9. En el futuro, ¿cuál es la probabilidad que vaya a mejorar el bienestar de los animales en su trabajo ?

10. ¿Qué le parece necesario en el sector de las terapias con animales para evolucionar y asegurar el bienestar de los animales que trabajan en terapias ?

Appendix 3 – French language survey

INSTRUCTIONS :

Merci d'avoir choisi de participer à cette étude. Pour certaines des questions, on vous demandera de sélectionner une réponse en cochant la case appropriée. . Pour d'autres questions, une réponse à développement vous sera demandée. Vous pourrez alors répondre dans l'espace offert.

PARTICIPANTS :

Cette étude cible les intervenants qui travaillent comme thérapeutes avec l'animal dans le contexte d'interventions en counseling, psychothérapie, santé mentale, travail social, éducation, soins psychiatriques, ou toute autre intervention favorisant la croissance personnelle. Si vous intervenez dans un autre contexte que ceux mentionnés ci-haut, veuillez ne pas compléter le sondage.

OBJECTIF DE L'ÉTUDE :

Le but de cette recherche est de documenter la réalité à laquelle font face les thérapeutes avec l'animal en ce qui concerne le bien-être des animaux avec lesquels ils travaillent. Cette étude a également pour objectif de fournir des informations pertinentes et utiles aux parties prenantes. Cette étude se focalisera à identifier les attitudes, intentions et pratiques des thérapeutes en ce qui concerne le bien-être des animaux mais également comprendre les besoins et les challenges de cette communauté. L'étude sera conduite par Antonia Eraud et supervisée par le Dr José Cunilleras afin de répondre aux requis du master en droit animal de l'Université Autómoma de Barcelona.

DÉTAILS :

L'étude prendra entre 10-15 minutes à compléter. Veuillez répondre de façon honnête au meilleur de votre connaissance.

RELATIONS AVEC LA CHERCHEUSE :

Antonia Eraud pourrait avoir une relation préexistante avec certains participants, en tant que collègue, étudiante, ou professionnelle. Si vous vous sentiez obligé de participer à l'étude à cause d'une relation préexistante avec Antonia Eraud, nous vous demandons de ne pas participer.

AVANTAGES A PARTICIPER A CETTE ÉTUDE :

* Étant donné qu'il existe très peu d'information accessible au sujet du bien-être des animaux de thérapie, vous aiderez à combler un vide documentaire important.

* Publier les résultats permettra aux personnes intéressées de s'informer plus facilement sur ce domaine. Les gens qui pourraient bénéficier de cette information comprennent les professionnels du secteur, les personnes qui souhaitent faire carrière dans ce domaine, les responsables gouvernementaux et représentants ministériels, ainsi que les membres du public qui voudraient bénéficier de thérapies avec l'animal.

* Augmenter la visibilité, la présence et la légitimité de votre présence dans la littérature académique. Cette étude a pour but de vous donner une voix.

ANONYMAT ET CONFIDENTIALITÉ :

Votre confidentialité et la confidentialité de vos données sera protégée car votre nom n'apparaîtra nulle part sur le sondage. De plus, vos données seront analysées de sorte à ce que l'identification d'individus particuliers qui participent à l'étude soit impossible.

DIFFUSION DES RÉSULTATS :

Nous souhaitons partager les résultats de cette étude lors de colloques ou d'autres présentations. dans des articles et revues scientifiques et à travers les médias.

A – Formation, parcours académique et parcours professionnel

1. Quelle est votre formation et/ou parcours académique ?
2. Quelle est votre expérience professionnelle en thérapie avec les animaux ?

B – Pratique professionnelle

3. Comment sélectionnez-vous les animaux qui travaillent avec vous dans les séances ?
4. Comment faites-vous pour que l'animal travaille avec vous pendant les séances ?

5. Décrire votre pratique en tant que thérapeute avec les animaux (nombre de séances par semaine, planning, rôle de l'animal, durée de la séance, votre rôle dans la séance...)

6. Quelle importance donnez-vous au bien-etre des animaux qui travaillent avec vous ?

7. Dans quelle mesure le bien-etre des animaux travaillant en thérapie est facile au sein de votre travail ?

8. Dans quelle mesure pensez-vous que les relations entre les participants et les animaux peuvent créer des bénéfices mutuels ?

C – Besoins & nécessités

9. Dans le futur, quelle est la probabilité selon laquelle vous allez améliorer le bien-etre des animaux qui travaillent avec vous ?

10. Qu'est-ce qui vous paraît nécessaire de faire évoluer dans le secteur des thérapies assistées avec les animaux pour assurer le bien-etre des animaux ?