

# Animal assisted interventions in practice: mapping Italian providers

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## Keywords

Animal assisted interventions, Animals in society, Complementary therapies, Italian AAI providers, Pets.

## Summary

Animal assisted interventions (AAI) have become increasingly popular in Western countries during the last fifty years, attracting a lot of attention both from the general public and the scientific community. In Italy, similarly to other countries, this evolution has been accompanied by the diffusion of associations delivering AAI. What is the current state of AAI in Italy? How many realities are dealing with AAI? What professionals and animals are involved? The results of the questionnaire here reported have the objective to answer these questions, outlining a snapshot of the distribution and the main features of AAI within Italian territory. According to the 208 respondents, the sector has seen a remarkable expansion over the last twenty years. AAI providers are located mainly in the North and Centre of the country, the majority of them are arranged in associations or AAI specialized centers and work mainly with dogs and equids in animal assisted activity (AAA) programs addressed to disabled people and children. The picture of the sector still appears fragmented in particular regarding team of professionals involved and their training; nonetheless, the recent set up of national guidelines by the Italian authorities has the objective of standardizing the field and defining best practices for each type of intervention.

## Interventi assistiti con gli animali: la realtà italiana

### Parole chiave

Interventi assistiti con gli animali, Animali in società, Terapie complementari, Realtà italiane IAA, Animali da compagnia

### Riassunto

Nel corso degli ultimi cinquant'anni, gli interventi assistiti con gli animali (IAA) hanno avuto una notevole diffusione nei paesi occidentali, attirando l'attenzione della comunità scientifica e del pubblico: un'evoluzione accompagnata dall'incremento del numero di associazioni pertinenti. Qual è lo stato attuale degli IAA in Italia? Quante realtà hanno a che fare con gli IAA? Quali sono i professionisti e gli animali coinvolti? I risultati del questionario riportati in questo articolo hanno l'obiettivo di rispondere a queste domande, fotografando la distribuzione e le principali caratteristiche degli IAA nel territorio italiano. Secondo i 208 intervistati, il settore ha visto una notevole espansione negli ultimi venti anni. Le realtà che si occupano di IAA, nella maggior parte dei casi associazioni o centri specializzati che lavorano soprattutto con cani ed equidi in attività assistite con gli animali (AAA) rivolte a disabili e a bambini, si trovano principalmente nel Nord e nel Centro del paese. Il quadro del settore appare ancora frammentato, in particolare per quanto riguarda l'équipe dei professionisti coinvolti e la loro formazione; tuttavia, la recente messa a punto di linee guida nazionali da parte dello Stato, delle Regioni e delle Province autonome di Trento e Bolzano ha l'obiettivo di uniformare il campo e definire le migliori pratiche per ciascun tipo di intervento.

## Introduction

Animal assisted interventions (AAI), generally defined ‘pet therapy’ or *médiation animale* in France, have become increasingly popular during the last fifty years in Western countries, attracting a lot of attention both from the general public and the scientific community (Michalon 2014). Currently, AAI are often used to reach therapeutic purposes as effective supports during rehabilitation processes, leading to physical, psychological and social benefits (Muñoz Lasa *et al.* 2011) or exploited in education, prevention and community efforts (Beetz 2013, Komorosky and O’Neal 2015). Since Boris Levinson’s article ‘The dog as a co-therapist’ (Levinson 1962) was published, the benefits achievable through the human animal relationship have been largely investigated for several categories of patients, as for example children with autism spectrum disorder (Borgi *et al.* 2016, Gabriels *et al.* 2015, O’Haire 2013), elderly patients affected by dementia or psychiatric disorders (Bernabei *et al.* 2013, Majić *et al.* 2013, Virués-Ortega *et al.* 2012), and alcohol/drug addicted inmates (Allison and Ramaswamy 2016, Contalbrigo *et al.* 2016, Mercer *et al.* 2015). Therefore, AAI are now introduced in many different settings, including schools, nursing homes, hospitals, prisons, daycare centers and social farms (Cirulli 2013, Julius *et al.* 2014), even though a need for more evidence based research still persists (Fine and Beck 2010). From the social point of view, this strong development of AAI is characterized by “a push by enthusiastic advocates rather than a pull by prescribing physicians” as commented by Palley *et al.* (2010) on animal assisted therapy (AAT) in human medicine: a sort of bottom-up dynamic has run over this field, in which the growing interest about the topic among the general public have elicited the necessity to regulate and structure the sector, taking concern of many issues about the involvement of animals in activities related to human health and wellbeing and stressing ethical (Italian National Committee for Bioethics 2005), safety (Bert *et al.* 2016) and economic arguments (Clower and Neaves 2015).

Hence, at international level, some associations and organizations have developed and established standards and best practices for AAI, as in the case of the White Paper of the International Association of Human-Animal Interaction Organizations (IAHAIO 2014), or the Animal-Assisted Interventions Code of Practice for the UK, edited by the Society for Companion Animal Studies (SCAS 2013).

Similarly to other Western countries, also Italy has recently experienced an increase in the diffusion of associations delivering AAI. Therefore, in 2003, the Italian Ministry of Health made a first step towards the legitimization of the animals’ role in human emotional life and their therapeutic value through an Official Decree of the President of the Council of

Ministers (DPCM 2003<sup>1</sup>) and subsequently, in 2009, it established the National Reference Center for animal assisted interventions (NRC AAI) with the mandate of promoting research into standardized operating protocols, strengthening collaborations between human and veterinary medicine, enhancing knowledge on the applicability of the interventions in given categories of patients, organizing and managing training pathways, collecting data and disseminating information about AAI among the international scientific community. Moreover, in 2015 an Agreement between the Italian Government, the Regional Authorities and the autonomous provinces of Trento and Bolzano was sanctioned, setting up guidelines on AAI (Italian National Guidelines for Animal Assisted Interventions 2015). These guidelines aim at recording and guiding the development of AAI sector through a dialogue among the institutions, all the stakeholders and the scientific world, in order to make the most of the resources and the interest which is blooming throughout all these levels. To achieve this goal, these guidelines foresee a) specific AAI training for each professional involved in the design and realization of AAI (veterinarian, animal handler, etc.); b) the establishment of a regional register of traders and facilities; c) health, welfare and behavioral requirements for the animals involved; d) the evaluation of the results of projects carried out, where possible, by scientifically validated indicators.

At present this agreement is being transposed and implemented by every Italian region. To our knowledge, there are no other countries in the world having regulated AAI at national level.

In this framework, since 2013 the NRC AAI has conducted an investigation on AAI Italian providers, through its website, with the aim of supporting the accessibility of data about AAI practitioners, AAI centers’ location and services to general public. Thanks to this initiative, it was possible to collect through a questionnaire some information about each provider, allowing us to outline the current state of AAI in Italy, the realities dealing with AAI, the professionals and animals involved. The main objective of this paper is to outline a snapshot of the distribution and the main features of AAI on the Italian territory.

## Materials and methods

### Participants

The sample comprised 208 AAI Italian providers who

<sup>1</sup> D.P.C.M. 28 febbraio 2003, Recepimento dell’accordo recante disposizioni in materia di benessere degli animali da compagnia e pet-therapy [Transposition of the Agreement related to the welfare of pet animals and pet therapy]. *Off J*, **52**, 4-3-2003.

volunteered to complete an on-line questionnaire. All the data collected have been treated in accordance with the current legislation in order to guarantee the security and privacy.

## Materials

A four section questionnaire was developed to collect information about AAI Italian providers. The first section picked up contact details of the respondents, type of organization and year of start-up. The second section comprised questions pertaining to their structures: whether or not they have residential animals, what species and the number of animals involved in the activities. The third section was composed by forced-choice questions which investigated professionals involved, and whether or not they have had specific training in AAI. Open choice questions were formulated to deepen the type of training followed by each professional. The fourth section comprised questions pertaining projects: typology (animal assisted activity: AAA, animal assisted education: AAE, AAT), number of projects within the last two years, clients/patients' categories, and forced-choice questions about the affiliation to national reference associations in this field, collaboration with local health authorities and presence of a rate table.

## Procedure

Data were collected via an online questionnaire between January 2013 and June 2016. A link to the questionnaire was posted in the NRC AAI website (<http://www.izsvenezie.it/temi/altri-temi/interventi-assistiti-con-gli-animati/censimento-nazionale/>): the compilation of the questionnaire gives the opportunity to be displayed in the map on the NRC AAI website, which shows AAI Italian providers and their contacts. The initiative was publicized in 2013 through NRC AAI website, and the invitation to participate to the questionnaire was sent through the direct newsletter to all subscribers to the site. Moreover, the opportunity to participate to the study has been disclosed during these years in all public contexts in which the NRC AAI was present.

## Data Analyses

All data collected were stored, validated and analyzed using Excel and Stata 12.1. A descriptive analysis has been performed, calculating frequencies for categorical variables. Pearson chi-squared test has been calculated to evaluate the association between categorical variables.

## Results

The results here reported refer to 208 Italian AAI providers that filled in the questionnaire until 30 June 2016. Concerning their geographical distribution, the Regions with higher number of providers are: Lombardy with 33 realities (16%), Veneto with 26 (13%) and Piedmont with 22 (11%) (Figure 1).

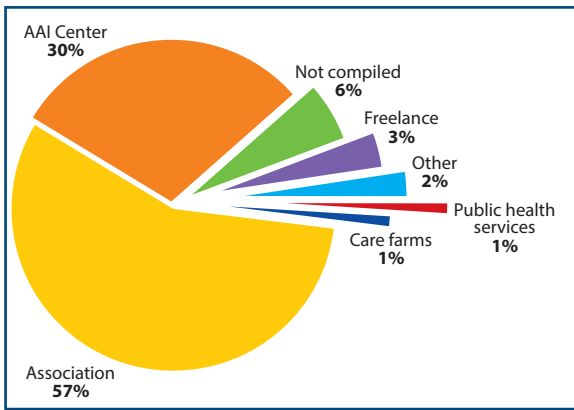
Respondents were mostly associations ( $n = 118$ ) and AAI specialized centers ( $n = 62$ ) that represent together the 87% of AAI providers, while the others are freelance, public health services, care farms and other (Figure 2).

Most of providers have started their activity in AAI from 2000 to 2015, with a peak of 74 realities initiated from 2005 to 2010 (Figure 3).

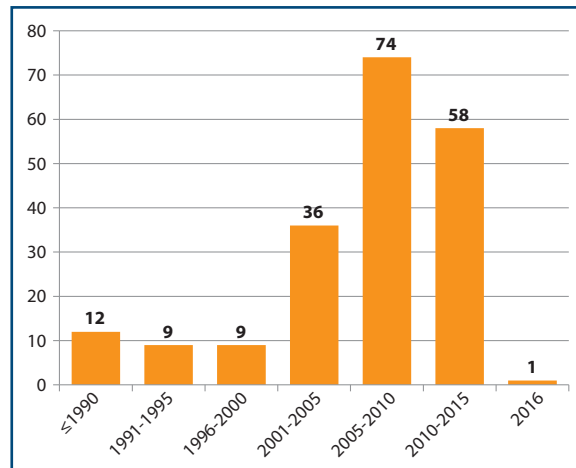
According to the respondents, 77 (37%) of them have a partnership with local health services, while 115 do not and 16 did not respond to this question. Pearson chi-squared test showed no association ( $p$ -value = 0.68) between the typology of provider (association, AAI center, etc.) and the collaboration with local health services. Moreover, within the respondents, 100 declared to be members of national reference associations; when asked for more details about these reference associations, it resulted a high variability, but the most frequently



**Figure 1.** Distribution of AAI providers throughout Italian Regions ( $n = 208$  respondents).



**Figure 2.** Percentages per typology of AAI providers (multiple choice, n = 208). Other: residential educational community for children, social enterprise, nursing home, spinal unit.



**Figure 3.** Number of Italian AAI providers according to years of institution (classes of 5 years).

indicated were CSEN (<http://www.csencinofilia.it/>), APNEC (<http://www.apnec.it/>) and SIUA (<http://www.siuait.it/>).

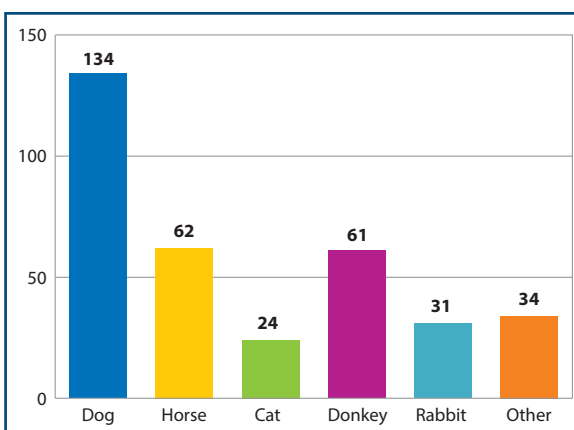
According to the respondents, dogs are involved most frequently in AAI in general, followed by horses and donkeys (Figure 4).

Looking at the providers that declared to have residential animals, 115 realities have animals in their structures (55.29%), 82 have not (39.42%) and 11 did not respond (5.29%). Within them, 28 declared to involve also visiting animals. Most of residential animals are again dogs (n = 60), horses (n = 58) and donkeys (n = 55).

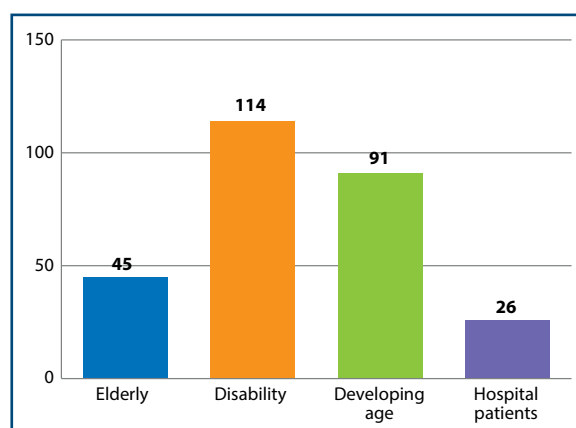
Concerning the distribution of the animals involved through Italian regions, the number of animals for each region results higher in Veneto (n = 316), Piedmont and Lazio. AAI providers with residential animals have 13 animals on average, while there are only four providers that declared to have more than 50 residential animals (mostly dogs, donkeys and

horses), and are located in Veneto, Piedmont, Lazio and Abruzzo regions. Realities that have between 30 and 50 animals, both residential and non-residential, are 14. According to the respondents, of 201 realities, 93% declared to do AAA projects, 82% AAE, 70% AAT. Seven providers did not specify the typology of AAI delivered. We asked the respondents to specify to what categories of participants their interventions are addressed. It resulted that AAA is addressed mostly to people with disability and school aged children, AAE to school and developing aged children, AAT to people with disability and children in developing age (Figure 5).

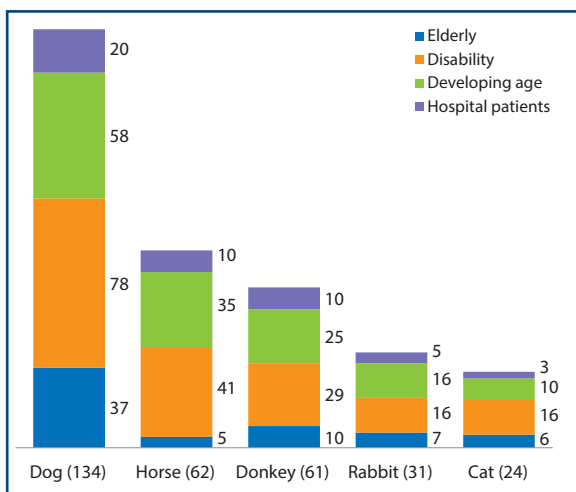
The total amount of projects delivered is 1,165, that can be split off into 544 AAA, 345 AAE, 276 AAT projects. Concerning AAT, we divided the projects according to patients' category and the principal species involved (dogs, horses, donkeys, rabbits and cats). The most common AAT interventions result with dogs for disabled people (78 projects) followed by AAT with dogs for developing age



**Figure 4.** Frequency per type of animal involved in responding Italian AAI providers (multiple choice, n = 192). Other: guinea pig, chicken, goat, ferret, pig, sheep, bee, duck, chinchilla, gerbil, goose, parrot, turtle, fish.



**Figure 5.** Number of responding Italian realities using AAT per category of participants (n = 145, 3 not specified).



**Figure 6.** Number of AAT projects delivered by Italian AAI realities (n = 201), according to the animals involved and the categories of participants. In brackets: number of providers working with the species.

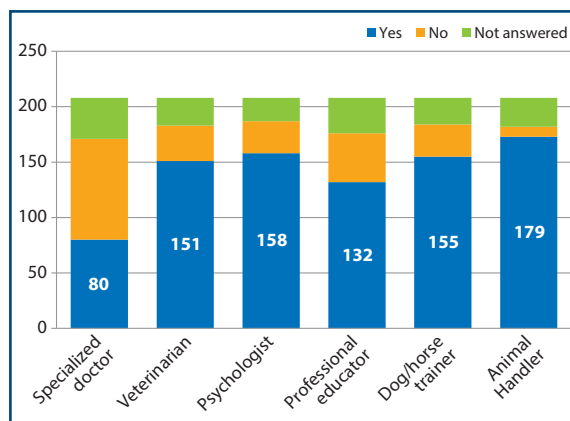
children (58 projects) and therapeutic horseback riding addressed to disabled people (41 projects), as shown in Figure 6.

Then we listed the professionals working in AAI Italian realities and, as shown in Figure 7, animal handlers (86%), psychologists (76%), animal (dog/horse) trainers (74%) and veterinarians (72%) are most frequently represented. 35.17% of providers performing AAT and 67.06% of providers performing AAE declared to make use of a multidisciplinary team composed by all the professionals laid down by the Italian National Guidelines. Notably, 63 providers out of 145 (43%) declared to deliver AAT with the support of a specialized medical practitioner.

As for AAI training, the respondents declared that 91% of animal handlers and trainers, 75% of psychologists and 66% of medical practitioners/physicians followed a specific training in AAI. Finally, more than half of the respondents (55%) declared to have a rate table for interventions (n = 196).

### Discussion

AAI have strongly developed both at Italian and international level during the last decades. Since 2000, Italian AAI providers have increased throughout the country, especially in some regions of the North and Centre. On the basis of our study, the territories with the highest number of providers are Lombardy (16%), Veneto (13%) and Piedmont (11%), followed by Tuscany (9%), Lazio (9%) and Emilia Romagna (7%). This distribution could reflect the great sensitivity of these territories towards AAI: their regional authorities have been historically involved in AAI development within their communities and they were particularly active in the



**Figure 7.** Personnel involved in AAI in responding Italian realities (n = 208).

implementation of AAI legislation, promulgating regional laws and official documents concerning the field. On the other hand, this distribution could be affected by the geographic proximity of the NRC AAI (which is in Veneto), therefore providers located in these areas could have known more easily about the opportunity to register themselves.

Regarding the typology of AAI providers, more than half of them (57%) are associations involved in social promotion or amateur sport clubs, often non-profit; this feature reflects the nature of AAI phenomenon in Italy, that is often animated by people providing volunteer work. Another relevant portion of providers (30%) is classified as AAI specialized centers: these are facilities with both residential and non-residential animals, in which AAI take place routinely. In this framework, 37% of providers collaborate with local health services, revealing that AAI are considered by the Italian national health system as possible steps of rehabilitative processes. The scenario of Italian AAI providers is further enriched by their attitude towards AAI national networks: these are represented by some big Italian associations that have been historically dealing with human/animal interaction, e.g. SIUA, APNOCS, LAPO, etc., or with dog lover/equestrian sports field (CSEN, APNEC, FISE). Approximately, half of the respondents refer to them as a clear sign that AAI providers need to aggregate and build dynamic networks to exchange experiences and challenges at national level. Indeed, only few of them indicate affiliations with international associations such as Animal Assisted Intervention International (AII), IAHAIO, Pet Partners suggesting the predominance of a national perspective in the field. Concerning the species involved, dogs result to be the most frequently engaged in AAI. Of course, in our country, dogs are 48.2% of the total amount of pets living in Italian families (6.9 million), exceeded only by cats with 7.5 million (Assalco-Zoomark 2016), therefore

they are largely represented, but their role in AAI is supported by their symbiotic relationship with humans, which seems to date back to 18,000 years ago (Thalman *et al.* 2013). Indeed, dogs' ability to respond to human directions is nowadays exploited in various contexts, including security work, moving livestock, and assisting humans with disabilities (Payne *et al.* 2015). Not by chance, the aforementioned Boris Levinson's 1962 article, which is considered to be the first benchmark of pet therapy, is entitled 'The dog as a co-therapist'. As internationally, also in Italy AAI projects and researches involving dogs are widely documented, in particular with children in hospitals (Vagnoli *et al.* 2015, Calcaterra *et al.* 2015, Palestini *et al.* 2016), with adolescents (Stefanini *et al.* 2015) and geriatric patients (Berry *et al.* 2012, Mossello *et al.* 2011).

Among the most involved species in AAI, horses and donkeys are placed in second and third place, respectively, but the difference is very limited. The human-horse relationship, too, has a long history and horseback riding is getting very popular in therapeutic riding programs during the last years (Hausberger *et al.* 2008). Equine-assisted interventions include hippotherapy, educational riding and vaulting, sport riding for the disabled, driving and equine-facilitated psychotherapy. In Italy, therapeutic horseback riding has been used in rehabilitation since 1972, but in the last twenty years it has seen a great development at organizational, scientific and formative levels (Pasquinelli 2009). As for donkeys, this species has seen a new interest in recent years, due to the development of onotherapy as confirmed in our study: since the 50s, the number of donkeys bred in Italy has fallen drastically because of the increasing use of machinery in agriculture and the depopulation of rural areas. In the field of AAI, donkeys are particularly valued for their unique characteristics: as stated by Rose and colleagues (Rose *et al.* 2011), their size and physical structure, together with the neotenic aspect, make them an unavoidable but not intimidating interlocutor with a physically welcoming acceptance. Moreover, in front of a new situation, donkeys seem to be instinctively curious, rather than impulsive or anxious. A study from Borioni and colleagues (Borioni *et al.* 2012) evaluating the efficacy of equestrian rehabilitation and onotherapy on physical and psycho-social performances of subjects affected by intellectual disability, concluded that there is an improvement in autonomy and social integration for subjects undergoing horse and donkey therapy. Onotherapy, thus, is presented as a suitable alternative to equestrian therapy.

According to the respondents, cats and rabbits result to be involved less frequently in AAI. A study by Stasi and colleagues (Stasi *et al.* 2004) reported an improvement in depressive symptoms and a significant decrease in blood pressure values in

institutionalized frail elderly patients assigned to a cat assisted therapy program. However, yet, little scientific research has focused on cats in the field of human animal interaction and the results are sometimes conflicting (da Silva Garcia and Martins 2016). On the other hand, rabbits are particularly appreciated for their small size and toy appearance, even if particular attention should be paid to their welfare during interventions (Loukaki *et al.* 2010).

The five species mentioned above (dog, horse, donkey, cat, rabbit) are cited in the Italian National Guidelines and they are at present the only ones admitted to AAT and AAE in our country, besides specific training courses are mandatory for their handlers. However, according to the respondents, there are other species that are traditionally involved in AAI (guinea pigs, chicken, goats, ferrets, etc.): these animals still require particular evaluations by national authorities concerning their safety and welfare before they could become eligible for AAT and AAE. Finally, the fact that more than a half (55.29%) of AAI providers declared to hold residential animals alerts to the need for adequate attention to their housing and husbandry, in order to ensure animal health and well-being, as well as users' safety. Therefore the Italian National Guidelines set up specific structural and management requirements for AAI centers with residential animals, which have to get a medical clearance by local health authorities.

Concerning the typology of AAI, 93% of providers declared to do AAA, 82% AAE, 70% AAT. According to the Italian Guidelines, AAT should be characterized by a medical prescription and therapeutic objectives, while AAE has specific educational goals; both are monitored and assessed by means of precise tools under the guidance of specific professionals. On the other hand, AAA has recreational and socialization objectives: the reduced need for planning and designing due to their relatively simple aims may explain the predominance of AAA programs among the respondents. We also speculate that the number of AAT and AAE projects could be overestimated, in light of the fact that the classification of the various types of interventions was only recently (2015) introduced by the national guidelines and so it may have not yet become part of the common mentality as a substitute for the more familiar, but too vague expression 'pet therapy'.

The target population of AAI project is various, but disability and scholar age are the most cited. According to the respondents, the most frequent AAT programs are canine assisted therapy addressed to disabled and children, and equine assisted therapy for disabled people. This trend corresponds to the international scientific literature with the prevalent involvement of children with physical and mental disabilities: for example, children with autism

spectrum disorders (Davis *et al.* 2015, Berry *et al.* 2013), with or at risk for mental health problems (Hoagwood *et al.* 2016), hospitalized children (Chur-Hansen *et al.* 2014, Vagnoli *et al.* 2015), or in pedagogical/educational programs (Bone 2013).

As for the professionals involved, AAI providers declared to rely mostly on animal handlers (86%), psychologists (76%) and animal (dog/horse) trainers (74%), while the involvement of physicians is still small. Even among those who claimed to deliver therapy, less than half declared to collaborate with physicians, whose only 66% followed a specific training for AAI. In a survey on Italian medical practitioners' attitude towards AAI, the majority of practitioners (85%) stated that they would like to attend training or refresher courses on AAI (Pinto *et al.* 2015). These results open the discussion to some considerations on the multidisciplinary team that is required for AAI. Depending on the delivery model used, professionals can play different roles in the AAT/AAE setting. As stated by Brooks (Brooks 2006) we can distinguish a diamond model and a triangle model: in the diamond model, the medical, psychological or educational professional works in partnership with the animal handler, while in the triangle model he works without the assistance of an animal handler. Therefore, the triangle model requires the professional to assume the roles and responsibilities on both sides of the balance. As for AAT/AAE, the national guidelines are formulated on the basis of the diamond model, so they provide the presence in the setting of both the animal handler and the professional who is referent for the patient/client. This model guarantees more safety on the setting, since there is one person that is responsible for the human and one person responsible for the animal side. We are now witnessing the transition from a field that was often based on forms of voluntary assistance to structured interventions with specific therapeutic or educational targets and the involvement of a multidisciplinary team with specific skills. As shown by our data, only 35.17% of AAT and 67.06% of AAE providers have a team with the composition set by the Italian Guidelines. Therefore the involvement of medical, educational or psychological professionals should increase. Indeed, the diamond approach raises some concerns about the economic sustainability of interventions for the general public and a reflection on the opportunity that they could be partially tap into the health system funds. For the moment, some more structured associations (just over 50%) already have a tariff for their performances.

### **Comparison with other studies**

Very little comparable research is available. As for Italy, Siliprandi (Siliprandi 2013) published data from

294 providers, collected through a previous survey conducted by the Italian NRC AAI in the 2012: a comparison with our data could be useful to give a glance to the spread of AAI in Italy during the last four years. This study confirms our results showing that Lombardy (14%) and Veneto (12%) are the regions with the highest number of AAI providers. Considering the typology, the majority of them are endorsed to be associations, with a small percentage of public health authorities involved. Author conclusions underline the heterogeneity of AAI Italian realities and the necessity for the setting up of guidelines and standardized protocols. This path has been effectively followed during subsequent years, culminating with the aforementioned Agreement of 25 March 2015. Another survey was conducted in the Emilia Romagna region (Cirulli *et al.* 2007). It is difficult to compare our results with that report, because of different sampling and methods, but in accordance with our study, dog resulted to be the most involved species; the professionals involved were educators, veterinarians and psychologists above all, and the patients were mainly children and elderly with disabilities.

A research of international literature showed no similar studies in other countries. This study therefore seems to be the first with these characteristics. There are, indeed, some surveys conducted in specific AAI contexts: for example, a recent study by Schuurmans and colleagues (Schuurmans *et al.* 2016) investigated AAI in Dutch nursing homes and found that 76% of nursing homes respondents ( $n = 165$ ) used AAI in one way or another. Similarly to our study, the species that is most involved in Dutch nursing homes is dog, but horses and donkeys were not considered in that survey due to the evident difficulty to introduce these big animals in that kind of setting. Moreover, data of a survey carried out in France in 2011, revealed that 10% of nursing homes (765 out of 7,725 interviewed) have AAI carried out with dogs and that 2,408 establishments (31%) have a constant presence of animals within the premises (Kohler 2010). Other studies were conducted earlier specifically in the field of pet-assisted psychotherapy (Mason and Hagan 1999, Rice *et al.* 1973). As it can be concluded from this comparison, the species, the personnel and the patients/clients involved strongly depend on the context in which AAI are delivered, which makes the comparison between different territories – and cultures – very difficult.

Finally, it is worth mentioning a master thesis by Schlote (Schlote 2009) that tackles the topic with a thorough survey on animal-assisted therapy and equine-assisted therapy/learning in Canada. The 'state of art' presented for Canada in 2009 coincides, for some aspects, with the results of our study: for example, the animal species involved in AAI or, more generally, some considerations on this field. In fact,

Schlotte concludes in her work that “the field of AAI in Canada is still in flux. Similar to the situation in the United States, the field is fragmented, disjointed, unmonitored, lacking of any clear direction, and facing a number of challenges that many believe to be impeding its evolution into a discipline that is more widely recognized and accepted.” Although this fragmentation and the state of constant change are also evident in the Italian context, in recent years the stage has been set for a change of approach and a recognition of this discipline.

### Limitations of the study and future research

This study has several limitations because it was realized to make available a practical and useful instruments to general public, to find AAI centers and associations located in Italy and not to collect data for a survey.

Therefore, the representativeness of the sample could be discussed since the questionnaire is based on voluntary participation through an internet page, it is inevitably limited firstly to individuals with access to the internet, and secondarily to those who heard about the study. On the other hand, it must be underlined that participants are still distributed throughout Italy and the initiative was advertised in every public situation where NRC AAI participated, just to ensure the widest possible dissemination of information. Nonetheless, a more systematic gathering of population demographics would be necessary in order to know if the sample of this study is really representative of the target population.

Another limit is given by the period of time for data collection: since we refer to a period of about 3 years, some of the questions and answers could have become obsolete over time. Future research could focus on a comparison of the Italian situation after the implementation of the national guidelines on AAI, since they foresee an official data flow from the providers to NRC AAI, through the regional authorities. Finally, it would be interesting to compare AAI in Italy with other national contexts, in order to bring out similarities and differences in the approach to this discipline.

### Conclusions

This paper outlines a snapshot on the current status of AAI in Italy: over the last twenty years, the sector has seen the flourishing of associations and centers that provide AAI mainly with dogs and horses and addressed especially to people with disabilities and children. This development was accompanied by a growing attention by researchers and institutions in the effort to standardize the field through national guidelines. One of the biggest challenges is currently represented by the definition of the responsibilities and competences that each professional involved in the multidisciplinary team should have, depending on the type of intervention (therapeutic, educational or recreational), to safeguard the health and welfare of both patients/users and animals involved. The implementation of the guidelines at regional level is likely to lead to a further evolution of the sector, which will be interesting to analyze in detail and compare with other international experiences.

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