

VETeris – A One Health approach for the health of the elderly

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Abstract

Human health is closely connected to those of other animals and the environment: this is where the “One Health” concept originates. Human-animal relationship, which is gaining increasing attention in the last years, positively impacts on individual's well-being, considering both living with pets (“Pet Ownership”) and Animal-Assisted Interventions (A.A.I.). A.A.I., consisting of health intervention programs involving animals, require a specific planning and the engagement of different trained professionals depending on the objective of the intervention and the characteristics of participants and they can be targeted to different users, including older persons. VETeris Association, born from the union of Veterinarians and Doctors specialised in Geriatrics, aims to promote older adults' quality of life and healthy ageing through the relationship with animals, implementing interventions, studies and initiatives which can be extended not only to different Italian regions but also all over the world.

Keywords

One Health, Elderly, Human-Animal Relationship, VETeris Association, Animal Assisted Interventions.

1. One Health: the unbreakable human-animal-environment bond

The concept of One Health has been developed after the observation that human health is intricately connected to those of other animals and the

environment that they inhabit. One Health [1] is an approach to investigate diseases which acknowledges that humans, animals, plants, and the environment are closely interlinked. In the mid-20th century, Dr. Calvin Schwabe, a veterinary surgeon from United States, compared approaches to hu-

man health, animal health and welfare suggesting the concept of “One Medicine” [2]. He highlighted the integrated, cross-disciplinary perspective which members of his profession could contribute to general medicine. He also advocated involvement of social sciences and enhancement communica-

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tion skills to improve working together with the community in efforts to control infectious diseases [2]. In fact, the need for collaboration between the human, animal, and environmental health sectors is an important issue nowadays. This is demonstrated due to the increase in emerging human infectious diseases with a zoonotic origin and in the resistance of microorganisms to antimicrobial drugs [3]. The main fields in which this concept of collaboration has been applied are zoonosis and zoonophylaxis, vaccines, and antibiotic resistance. Today a new area is part of the approach to One Health which is that of AAI – Animal Assisted Interventions. The AAI requires an integrated approach between human medicine, psycho-social sciences and veterinary medicine to achieve the goal of “common health”. Pets can be important for the physical and mental health of humans, but they can also transmit zoonotic infections or become infected. Due to the changing human-companion animal bond, recommendations are needed regarding responsible pet ownership, including normal hygiene practices, responsible breeding, nutrition, sharing

the home environment and a quality of life compliant with biology of the animal to ensure its well-being. Various professional figures from healthcare, environmental, biological, psycho-social, IT sciences and many others contribute to One Health [9].

2. The fundamentals and characteristics of the human-animal relationship

The foundations and the potential of the human-animal relationship were studied in Italy by Roberto Marchesini. The Author defines the human-animal relationship as the “meeting in a threshold”. The positive potential of this encounter lies in the “contamination” that arises by crossing the threshold of the other, where the other is different from me and as such enriches me [10].

A beneficial relationship with the animal is based on knowledge of its characteristics and needs, it is a congruous relationship. Another characteristic for a beneficial human animal relationship is in the concept of adequacy or awareness that is the attribution of the right value and necessary interest, both in terms of time and availability towards the care of the animal [11].

An important potential of this relationship is also the ability to stimulate the person to question themselves by recognizing the animal as a referent, therefore as a point of reference and as a term for constructive comparison. The animal becomes a referent if we allow it, within a correct relationship, to become a support but also a proposer of models and questions to answer as a term of constructive comparison [11].

Through this relationship we can stimulate psychological processes, support patients undergoing painful or distressing therapeutic protocols, support the person experiencing psychological or social distress, but also the child in the various stages of development. Companion animals can be sources of support and contribute to the acquisition of skills and the educational process of young people.

Furthermore, a study conducted among homeless people who shared their lives with a dog showed that for these people the relationship with their animals was of fundamental importance. This work has also identified an important gap in social services and the need for a One

Health approach by public administration. The importance of this bond must be recognized for the homeless and for the elderly, by establishing dedicated reception centers that guarantee both animal and human health. Reducing barriers to essential services would help ensure that homeless and elderly pet owners are not forced to choose between a home and their pet, which for many would tend to perpetuate hardship [12].

Due to the increase in life expectancy, the world of the elderly seems to receive more and more attention from healthcare institutions for the commitment of the resources necessary to guarantee an adequate lifestyle and well-being. In this scenario, AAIs prove to be a health and preventive tool of fundamental importance.

Geriatricians and veterinarians therefore felt the need to structure a professional collaboration. This has led to a Scientific Society, with the aim of defining specific medical protocols and working approaches in the context of the elderly – animal relationship, where each competence enriches that of the other.

3. Benefits of human-animal relationship

Living with pets positively impacts on factors influencing the individual cardiovascular risk [4-6]. Indeed, it has been demonstrated that dog-owners walk more than people who don't have a dog. A higher level of physical activity significantly affects the maintenance of functional autonomy, the control of weight and cardiovascular risk. In addition, some studies suggest that physical activity with a dog reduces overweight and it increases adherence to weight loss programs. Living with animals also reduces blood pressure in both hypertensive patients and non-hypertensive subjects and it seems that having an animal reduces mortality related to stroke and heart attack.

Non-human animals, additionally, are often described as a source of comfort, support and protection, as well as examples of patience. The company of an animal attenuates one of the psychological aspects of pain, acting on mood, also preventing depressive symptoms. Additional data show that pet-ownership in adult age improves cognitive performance in older age. Older people living with animals have better cognitive functions: espe-

cially verbal learning and memory. There are data demonstrating a reduction of behavioural disorders in elderly patients with dementia [7].

4. Animal Assisted Interventions (AAI)

Animal Assisted Interventions could have therapeutic, rehabilitative, educational and recreational value and involving domestic animals like dogs, cats, rabbits, horses and asses. These interventions are aimed mainly to people with physical, neuromotor, mental and psychic disorders, dependent on any cause, but can also be addressed to healthy individuals. The correct application of AAI requires the involvement of a multidisciplinary team composed, depending on the type of intervention, by health, pedagogical and technical figures with different tasks and responsibilities [8].

According to areas of activity, AAI in Italy are classified in [8]:

- Animal-Assisted Therapy (AAT): intervention with therapeutic value aimed at treating physical, neuro- and psychomotor, cognitive, emotional and relational disorders. They are addressed

to patients affected by pathologies of any origin. This intervention is customised to the patient and requires a medical prescription [8];

- Animal Assisted Education (AAE): an educational intervention that aims to promote, activate and support the resources and potential for individual growth and planning and to promote relationships and social integration of people in difficulty. This intervention can also be group-based and it promotes the well-being of people in their own living environments, particularly within institutions where the individual has to deploy adaptive capacities. The AAE contributes to improve the person's quality of life self-esteem. Through the mediation of pets, behavioural re-education courses are also implemented. The AAE therefore finds application in various situations such as, for example:
 - prolonged hospitalisation or repeated admissions to health facilities;
 - relational difficulties in childhood and adolescence;
 - emotional and psycho-affective distress;

- behavioural and socio-environmental adaptation difficulties;
- situations of institutionalisation of various kinds (institutions for the elderly and psychiatric patients, residences;
- care homes, communities for minors, prisons, etc.);
- conditions of illness and/or disability involving an integrated home care programme [8];
- Animal Assisted Activity (AAA: an intervention with recreational and socialisation purposes aiming to improve quality of life and proper human-animal interaction. Sport/competitive activities with animals are not included in AAA. In AAA, the relationship with the animal constitutes a source of knowledge, sensory and emotional stimuli. This intervention promotes in the community the value of human-animal interaction for mutual well-being. AAA in some cases could be preparatory to AAT/AAE and they are aimed, among other things, at:
 - developing skills through animal care;
 - increasing relational and communicative readiness;

- stimulating motivation and participation [8].

5. VETeris (Italian Association of Geriatricians and Veterinarians for Animal Assisted Interventions)

VETeris is an association born from the union of Veterinarians and Doctors specialised in Geriatrics, to promote an active and healthy ageing of the elderly through healthy lifestyles with non-pharmacological interventions. The Italian Association of Geriatricians and Veterinarians for Assisted Interventions with Animals (AAI) was created to optimise pet-therapy guidelines aimed at improving the quality of life of the elderly, creating a real community based on therapeutic benefits. VETeris is in line with demographic forecasts which indicate that by 2030 more than 24% of the European population will be over 65 years old (in Italy there are more than 13 million over 65). Furthermore, the project shares the vision of the World Health Organisation (WHO), which has recently implemented the concept of active ageing, defining it as “the process of optimising opportunities for health, participation and security in order to improve the quality of life as we age”.

In these recent years VETeris has realised:

- the first “Guidelines on AAI for the well-being and health of older people in Italy;
- clinical research doing a survey at the Azienda Ospedaliero-Universitaria of Careggi, Florence, to analyse the benefits for the elderly of pet-ownership and a census on a sample of the elderly population in Florence on the presence of animals in their homes;
- different projects as pilot studies of AAI in residences for the elderly (Nursing Homes and Day Care Centres);
- according to the Guidelines on Animal Assisted Interventions, counselling for the conscious adoption of animals for the over-65 population;
- consulting activities for the implementation of AAI in all Italy;
- training activities for healthcare (doctors, nurses, healthcare workers), caregivers, family members on the importance and impact of AAI and pet-ownership;
- publicity and promotional campaign for general population.

With the well-being of the elderly population as its primary goal, VETeris has as its main purpose for the next few years to continue promoting and implementing interventions, events and initiatives which can also be extended and sponsored all over the world.

6. Health assessment and monitoring plan of dogs involved in AAIs

The expert veterinarian in AAIs must always carry out a preventive health assessment of the dog involved in the AAIs to verify its health condition. Additionally, they are responsible for establishing the planned health monitoring for the animal throughout the project and defining the management procedures that the co-handler must adhere to, both within and outside the setting. This ensures effective management of health risks related to interactions between the elderly and animals involved in AAIs.

Previous studies have demonstrated that apparently healthy animals involved in AAIs can carry and potentially transmit zoonotic pathogens to humans, even without exhibiting symptoms. This is of particular concern in AAT because the animal teams visit

healthcare settings and interact with patients that could be immunocompromised for physiological and/or pathological reasons [13].

In this regard, particular attention should be given to controlling ecto- and endoparasite infestations and the prophylaxis of specific infectious diseases. The ESCCAP (European Scientific Counsel Companion Animal Parasites) Guidelines recommend year-round treatments against fleas and ticks, since the risk of infestation is constant and exposure is difficult to avoid [14].

Topical or systemic products are available on the market. When using topical products such as spot-on or sprays, it is advisable to avoid touching or petting the animal for the first 48 hours after application [15]. However, there is no risk of contact with the active ingredient when using systemic products in oral tablet form [16]. Since dogs are the main reservoir of *Leishmania infantum*, it is recommended to use slow-release pyrethroid-based products (e.g. collars with long duration) alongside vaccination for all dogs involved in AAIs [15].

Recent studies have found zoonotic intestinal helminths and protozoa in approximately

24.3% and 30.4% of the dogs involved in AAIs, respectively, highlighting the potential risk of transmitting these parasites to humans [17].

To reduce the risk of transmission of zoonotic endoparasites to humans, ESCCAP

guidelines recommend performing a copromicroscopic examination at monthly intervals and treatment based on the results. [18].

Regarding vaccination prophylaxis for infectious diseases, the veterinarian must

verify that the AAIs dog has the most appropriate vaccination protocol based on age, lifestyle, and risk of exposure. Special attention should be given to zoonotic infectious diseases (e.g leptospirosis) [19].

Notes and References

1. Centres for Disease Control and Prevention (2023), *One Health*, available at: <https://www.cdc.gov/onehealth/index.html> (last accessed 14/10/2023).
2. Schwabe C.W. (1969), *Veterinary Medicine and Human Health*, 2nd edition, Ballière, Tindall and Cassell, London.
3. Sikkema R., Koopmans M. (2016), *One Health training and research activities in western Europe*, «Infection Ecology & Epidemiology», 6(1). DOI: <https://doi.org/10.3402/iee.v6.33703>.
4. Surma S., Oparil S., Narkiewicz K. (2022), *Pet Ownership and the Risk of Arterial Hypertension and Cardiovascular Disease*, «Current Hypertension Reports», 24, pp. 295-302. DOI: <https://doi.org/10.1007/s11906-022-01191-8>.
5. Levine G.N., Allen K., Braun L.T. et al. (2013), *Pet Ownership and Cardiovascular Risk. A Scientific Statement From the American Heart Association and on behalf of the American Heart Association Council on Clinical Cardiology and Council on Cardiovascular and Stroke Nursing*, «Circulation», 127(12). DOI: <https://doi.org/10.1161/CIR.0b013e31829201e1>.
6. Chayakrit Krittanawong C., Kumar A., Wang Z. et al. (2020), *Pet Ownership and Cardiovascular Health in the US General Population*, «American Journal of Cardiology», 125(8), pp. 1158-1161. DOI: [10.1016/j.amjcard.2020.01.030](https://doi.org/10.1016/j.amjcard.2020.01.030).
7. McDonough M.I., Hillary B., Erwin H.B., Sin N.L. et al. (2022), *Pet ownership is associated with greater cognitive and brain health in a cross-sectional sample across the adult lifespan*, «Frontiers in Aging Neuroscience», 14. DOI: [10.3389/fnagi.2022.953889](https://doi.org/10.3389/fnagi.2022.953889).
8. https://www.salute.gov.it/imgs/C_17_opuscoli-Poster_276_allegato.pdf.
9. Overgaauw P.A., Vinke C.M., van Hagen M.A.E., Lipman L.J.A. (2020), *A one health perspective on the human-companion animal relationship with emphasis on zoonotic aspects*, «International journal of environmental research and public health», 17(11). DOI: <https://doi.org/10.3390/ijerph17113789>.
10. Marchesini R., Bussolini J. (2018), *Rediscovering the threshold. In The Philosophical Ethology of Roberto Marchesini*, Routledge, pp. 59-82.
11. Garoni E., Molteni M. (2016), *Il contributo della zootropologia alla pet-therapy*, in Cairo M. (a cura di), *Interventi assistiti con gli animali. Problemi e prospettive di riflessione e di lavoro – Atti dei Convegni 2011 e 2015*, p. 79.
12. Scanlon L., Hobson-West P., Cobb K., McBride A., Stavisky J. (2021), *Homeless people and their dogs: Exploring the nature and impact of the human-companion animal bond*, «Anthrozoös», 34(1), pp. 77-92.
13. Simonato G. et al. (2020), *Surveillance of zoonotic parasites in animals involved in Animal Assisted Interventions*, «International Journal of Environmental Research and Public Health», 17(21). DOI: <https://www.mdpi.com/1660-4601/17/21/7914>.
14. *Raccomandazioni generali “Come proteggere dai parassiti i nostri animali da affezione – Linee Guida ESCCAP*.
15. Francia N. et al. (2019), *Rapporti ISTISAN 19/4. Metodologie per la valutazione dell'idoneità e del benessere animale negli I.A.A.*
16. Pfister K., Armstrong R. (2016), *Systemically and cutaneously distributed ectoparasitocides: a review of the efficacy against ticks and fleas on dogs*, «Parasites & Vectors», 9. DOI: <https://doi.org/10.1186/s13071-016-1719-7>.
17. Gerardi F. et al. (2018), *Parasitic infections in dogs involved in animal assisted interventions*, «Italian Journal of Animal Science», 17(1), pp. 269-272.
18. *Worm Control in dog and cat*, ESCCAP Guideline, 6th edition, May 2021.
19. ECDC, *Surveillance Report. Leptospirosis. Annual epidemiological Report for 2017*.