



EDITORIAL

Animal assisted intervention (AAI) for children in either research, practice or policy from a One Health perspective

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Improving the quality of life of various population groups constitutes the principal objective of contemporary socioeconomic development concepts [1]. Originally focused on the link between veterinary and human medicine [2], “One Health” has been extended to embrace the concept of “One Welfare” by considering the diverse links between the well-being of humans and other animals [3, 4]. Animal assisted intervention (AAI) is a potentially ideal example of “One Health-One Welfare” as supported by the increasing number of studies and widespread testimonials on the benefits that animals provide to human health and well-being, and, conversely, the positive response of dogs to human company for their emotional and physical betterment [4]. In Italy AAI have been recognized as official care by the Prime Ministerial Decree issued on February 28, 2003. AAI implementation is regulated by the Agreement between the Government, the Regions and the Autonomous Provinces of Trento and Bolzano on the document bearing *National Guidelines for Animal Assisted Interventions (AAI)* of March 25, 2015, which has been fully transposed in April this year.

Scientific evidence and sound methodological instruments are fundamental requirements to make the AAI an innovative instrument for healthcare and education [5]. Unfortunately, till now scientific data collection to support the AAI strategies was hampered by a widespread tendency to regard anecdotal results as valid, as by the tendency of professionals sensitive to animal kindness to give priority to intervention over empirical research [6, 7].

Animals, particularly dogs, can have a profound calming effect on children by contributing to give them a positive perception of the situation [8], and may help children cope with stressful experiences, like hospitalization [9]. Since children are less anxious when they interact with dogs, they might also be more willing to engage with peers and adults: an increase in responsiveness, alertness and willingness to communicate was observed when a dog was introduced in classroom or in therapeutic environments [10, 11]. Despite this widespread belief that the child-dog interaction is beneficial to children’s social-emotional and cognitive level [12],

there is a general lack of published experimental data [13].

In 1999, Intermountain Therapy Animals launched the Reading Education Assistance Dogs (READ), that is the first high level program to advocate children reading to dogs. The rationale for implementing reading sessions at the presence of a dog is that when children read to a listening, though non-judgmental dog, they become more relaxed and confident and able to overcome reading anxiety. All this helps increase children motivation to read [14], which, in turn, may improve reading performance, so that the presence of a dog could indirectly contribute to improving children reading abilities and learning experiences [15]. Given the important role of emotion in learning [16], integrating dogs into reading sessions could also provoke an emotional response that might itself be beneficial to learning.

Learning to read and write is crucial to a child’s success in school and later in life, actually helping get better chances. At the same time, it is becoming increasingly evident that good literacy has wide-ranging implication for health, social and economic advancements. Indeed, poor literacy has been associated with reduced health, economic growth, social participation and self-esteem, as well as increased accidents and job absenteeism [17]. Acquiring well-developed basic literacy skills is therefore not just relevant to [...] an individual’s performance, but is also a social, as well as a major societal issue. In this context, because they have the potential to bring significant improvements to children’s reading abilities, reading to a dog’s programmes are very interesting and deserves thorough consideration. However, before this practice is implemented into mainstream education further scientifically rigorous research is needed to quantify the effects on children and unravel clear physiological, psychological and behavioural mechanisms underlying these effects, using standardised endpoint-based analysis.

To understand the evidence base of READ and similar programmes, a recent systematic review investigated key studies that have been published in scientific journals reporting the pedagogic effects of reading to dogs. The review highlighted 48 English-written papers that discussed measurable effects related to this topic, all of

which found positive effects on children's reading skills and behavioural processes (e.g., reduced reading anxiety, increased self-esteem, enjoyment and reading engagement). Unfortunately, these studies provided low quality evidence due to severe flaws in research methods, which are those common to most of the scientific literature on AAI. Methodological limitations include small sample sizes, lack of a formalized process of peer-review, insufficient control for baseline scores or lack of control groups, use of subjective judgements (e.g., teacher opinion) instead of standard measures. These weaknesses give rise to various criticisms and still limit the support for the use of AAI in health and education services.

Future studies should be based on a holistic biological approach merging qualitative and quantitative data, from accomplished, interdisciplinary teams. The potential influence of confounding variables, such as demo-

graphic and pet attachment characteristics of children, should be controlled for, as that would provide accurate prediction of the intervention outcome.

Moreover, there is a need to know more about the behaviour and physiological status of dogs during work in this particular activity [18]. Dogs could experience stress (both acute and chronic) that might affect their willingness to work in an education setting, thus affecting their performance and excluding them from work.

With such a rigorous body of research behind it, the AAI theme will be brought out of its niche, grating status as a scientific and social theme of full visibility.

We urge all this new knowledge to be infused into scientific and professional communities to support high-quality AAI research and practice, and to be used by policymakers for shaping decisions upon which the future of AAI in the health and education systems will likely be built.

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