Alessandro Leone
Andrea Caroppo
Gabriele Rescio
Giovanni Diraco
Pietro Siciliano   *Editors*

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Human and Animal Welfare Assessment During Animal Assisted Interventions (AAI): A Pilot Project in Progress

Patrizia Ponzio, Assunta di Matteo, Elisabetta Macchi, Telemaco Traverso, Augusto Carluccio and Marco Berardo Di Stefano

Abstract The use of technology and technological tools has always been to support the improvement of the people life quality. The present project intended to value the animal and human comfort and welfare during the Animal Assisted Interventions (AAI). The approach used in this project is in according to the biopsychosocial model, using both the International Classification of Functioning, Disability and Health (ICF) and behavioral aspects and hormonal levels evaluation in the animals in order to obtain important data to standardize an no invasive method of welfare assessment during therapy, rehabilitation, and pedagogical education activities.

Keywords Life quality · Human and animal welfare · Animal Assisted Interventions

P. Ponzio · E. Macchi
Dipartimento di Scienze Veterinarie, Università di Torino, Grugliasco, Italy
e-mail: patrizia.ponzio@unito.it

E. Macchi
e-mail: elisabetta.macchi@unito.it

A. di Matteo (✉)
Dipartimento di Economia, Università degli Studi di Roma "Tor Vergata", Rome, Italy
e-mail: assunta.dimatteo5@gmail.com

T. Traverso
Laboratorio di ricerca, Sesamo Software spa; SSD MED 48, Dipartimento di medicina clinica e sperimentale, Università di Foggia, Foggia, Italy
e-mail: contatto@sesamoweb.it; telemaco.traverso@unifg.it

A. Carluccio
Facoltà di Medicina Veterinaria, Università di Teramo, Teramo, Italy
e-mail: acarluccio@unite.it

M. B. Di Stefano
Rete Fattorie Sociali, Rome, Italy
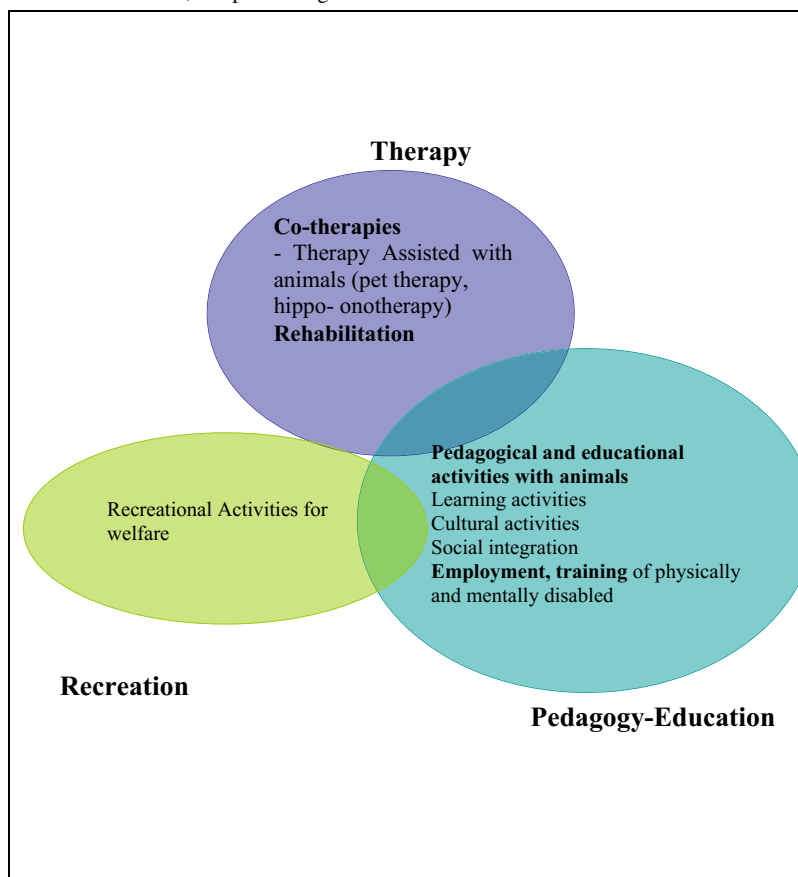e-mail: presidente@fattoriesociali.it

1 Introduction

A new rural paradigm stands out as the interrelationship between agriculture, landscape protection and social services (e.g. Social Agriculture, Teaching Farms, Social Farms, Animal Assisted Interventions and so on) [1]. Multifunctionality Agriculture, in fact, has received a lot of attention over the last decade from scholars and policymakers. Models based on forms of solidarity or trust could be a crucial driver for fostering the competitiveness of rural areas. Evaluation tools are needed for analyzing the current system and for improving the social approach.

This research involves a multidisciplinary team with behavioural sciences in human and animals and educational skills to evaluate all the aspects of the development of an assistive enabling environment, the welfare of the human and the animals employed. The experimentation of these criteria shows the effects of physical environment on functional performance and gives evidence based knowledge to a supportive environment that is able to control sensorial stimulation and to improve individual abilities, especially during the childhood, as a life-project in terms of wellbeing, autonomy and quality of life.

The focus is on the spirit of responsibility and the importance of evoking choices by House [2] and on the crucial role of the education function and on functions of networking several stakeholders. Management of multifunctional land models is by several components which structure development deriving from the new rural paradigm [3]; in this respect, the need to define indicators concerning the economic and social/health dimensions of agriculture and rural development stands out. Several studies provide indicators [4–8] based on local data such as a practical method to monitor progress towards aims and new models. However, since there are many conflicting frameworks proposed to develop indicators, it is unclear how best to collect these data [8]. Here we select from existing literature and propose possible indicators with a special look at the health and social dimension and not only. There is no unique way of defining or measuring the "attractiveness" of rural areas, but important aspects include the level of income, the possibilities for employment and new opportunities for income in these areas, the physical infrastructure, the social capital, the quality of the environment, and so on. Far from being exhaustive. The following Table 1 provides an overview of the main aspects in this work and specifically the AAI intervention areas (therapeutic, rehabilitative, educational-pedagogical and wellness); further steps will be needed to define the methods and criteria for assessing the effects of the AAI on human well-being. As is evident, indicators and methods for estimating the features and potential to generate welfare of the rural areas and the green care. These evaluation tools can be very interesting in the light of the ongoing transformations within the agricultural sector (from productivity towards multifunctional practices) and within the health and social service sector (from highly institutionalized to community care) [9].

The aim of this proposal project is to provide an analysis of the educational and social opportunities deriving from multifunctional agriculture and AAI. Furthermore, we define indicators focusing on the social/education dimension and to identify a non-

Table 1 AAI functions, our processing

invasive standardized and objective method to evaluate and judge both the attitudinal characteristics that the welfare state [10, 11] in animals (e.g. donkey and horse) in order to maximize the possibilities for their use in AAI.

2 Pilot Project in Progress

The use of technology and technological tools has always been to support the improvement of the people life quality. Growcare is proposed as a useful tool to ensure a complete and reliable management of complementary therapies such as AAI and interventions of *Orto di Aiuto* (*OdA*) [12].

Growcare is an advanced technological programm as therapies and educational support.

Considering that the project MISS Masseria of educational Social—Sanity Inclusion has evaluated, thanks to the ICT support also the human comfort during the AAI; considered that the pilot study performed to the Department of Veterinary Science has valued the animal comfort this pilot project intends to integrate and to implement the data of two research to the purpose of study of correlation human and animal welfare during the AAI.

2.1 Proposal Project Methodology

2.1.1 Approach to Human

The implementation of the platform in the cloud "MISS", aims to give a service that facilitates the staff employed in the AAI and OdA as well as customers/patients, to monitor the patient. The person/user who takes advantage of the AAI and OdA, within the platform, is identified with the folder. Each patient has, from the moment of registration (before acceptance), a personal folder in which is enclosed all its clinical and demographic information. You can manage change master folders, generate a report of the entire activity on each folder directly from the home page. The platform consists of two areas. The first, dedicated to activities, is the area interventions: AAI and OdA, the second is related to the monitoring of the user/patient. The first is the inclusion of activities associated to the program established in the previous phase, called the intervention program. Here the operator has access to the program established by the clinician of reference and following his directions, once carried out the task, it writes the results collected inside the mask for insertion. The inclusion of the program there are: activities of AAI (Fig. 1). For each operation, you should provide the following information: • date; • type; • the number of session; • animal/plant; • meetings; • Tools.

At each stage, you can add, through the analysis and testing, documentation of information. This useful to collect the documents accumulated during treatments and the activities carried out on the farm.

The material and all patient behaviour are attached to each folder. They are available at any time, simply download the material, if you have the privilege to access the area, and view the documentation previously loaded.

To create an entity analysis and testing you must locate the clinical phase, the test date and any additional notes (Figs. 2 and 3) [13].

The type of activities related to the use of agricultural resources (e.g. care of plants, therapeutic gardens), environmental resources (e.g. the simple vision of a landscape), animal relationship (e.g. AAI, hippotherapy) of therapeutic-rehabilitative programs with people with different problems, undoubtedly presents a challenge for the definition of practices conducted on the strictly scientific level and for the evaluation of information aimed at the formulation of judgments on actions and structured activities, for the realization of rehabilitative pathways and psycho-educational individualized.

Fig. 1 Sesamo Software spa—Grow Care—a pilot projet in progress

During the project MISS, the team defined the methods to be adopted in the farm and the procedures to update the data in the platform and monitor the progress of the treatments. For the validation of the routes, ad hoc tests were structured [14].

Adult patients underwent the following tests and evaluations: Mini-International Neuropsychiatric Interview—MINI [15], Psychiatric Rating Scale—BPRS [16] Short Intelligence Test—TIB, Activities of Daily Living—ADL, Short Form 36 Health Survey Questionnaire SF-36 [17].

Minor patients underwent the following tests and evaluations: Colored Progressive Matrices—CPM [18], Psychoeducational Profile—Third Edition—PEP III [19] (Fig. 4).

All participants underwent clinical and neuropsychological evaluation on entry into the farm before treatment exposure (T0), during—3rd month (T1) and at the end of treatment—VIth month (T2), and monitored through a specially designed test.

According to the biopsychosocial model, the ICF (International Classification of Functioning, Disability and Health) was inserted to measure the well-being of the person. In 2001 the World Health Organization [20] to describe the health and the disability of the population has adopted the classification ICF and subsequently the ICF-CY (Children and Young) that keeps in mind of the relationships among mind, body, environments, contexts and culture, setting as plant the quality of the life of the people affect from a pathology, underlining that the knowledge is necessary of the functional state of a person as an unified and shared language that you

Fig. 2 Sesamo Software—Cluster Tecnologico MISS, 2018

Fig. 3 Sesamo Software spa—Cluster Tecnologico MISS, 2018

Fig. 4 Patient 01. Diagnosis: Autism spectrum disorders. Age at T0 6 years—Cluster Tecnologico MISS, 2018

frame those that are the consequences of the conditions of health so that can be improved. The ICF doesn't classify illnesses, disorders or troubles, that are proper of the classification ICD (International Classification of Diseases) (2000) rather, it tries to individualize what can happen in association with a condition of health, understood the personal and environmental resources. Among the conditions of health that can bring to intervention with the daily activities there are congenital anomalies or genetic predispositions as those correlated to the onset of the trouble of the ghost of the autism but with the ICF it also looks him at the abilities or potentiality on which to make lever for the construction of a quality of best life, despite the diagnosis. Just for this, the job of the operators of help that you/they aim to the comfort of the consumer must be a job of team, that must be multidisciplinary, global, tense to sustain the improvement of the quality of the life of the person.

2.1.2 Approach to Animal

The careful assessment and selection of animal in according to their specific characteristics are necessary to develop a protocol assuring the animal welfare and allowing them to become co-therapists. In order to do this, the multidisciplinary team is required according to the Italian Guidelines in AAI [21, 22]. The use of the animal as a co-therapist in the AAI [23–25] requires to study behavioral aspects related to each species, for which the scientific data and issue are inconsistent or even absent. In order to understand the animal's response to stimuli and the ability to live together with other animals and humans, it is also essential to know the ethogram and learn to assess the subject temperament [26].

Specific studies on different species (dog, donkey and horse) were made to fix an objective standardized protocol by monitoring the animal welfare during IAA (Fig. 5). The collection of the samples to be analysed has been performed according to a standardized protocol for schedule (to the morning) and for collection (not invasive to guarantee the welfare without restraint) with the purpose to reduce the hormonal variations to its secretion and the external interferences not related to the specific stimuli to be analysed. The behavior of subjects without experience and learning in the field of assisted activities was observed during the administration of external stimuli, repeated during two experimental sessions. The response to each stimulus was evaluated and a score was assigned: *approach*—score from 1 to 5 based on the time elapsed between the administration and response (5 approaching less than 10″ and 1 over 60″) with a value of 0 for the missed approach; *exploration*, *removal*, *block*, *attack* and *escape*—indicating the occurrence or not (1/0). The results were expressed as the frequency percentage. The correlation between the activity and welfare of animals was determined by quantifying, with an immunoassay kit validated for different species (chosen for family affinity and gender), the fecal cortisol metabolites concentration (FCMC) the day before and the 2 days following the administration of each stimulus. Statistical analyzes were performed using GraphPad Prism 4 software (GraphPad Inc). The Kolmogorov-Smirnov test, the Friedman non-parametric test for repeated measurements with post-test (Dunn's
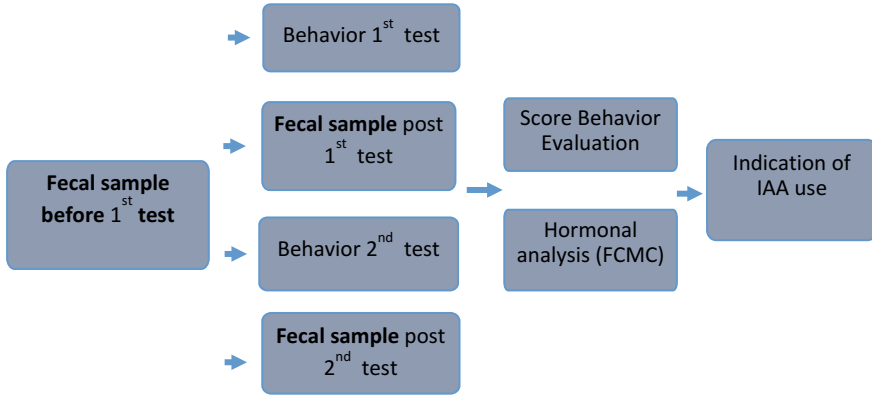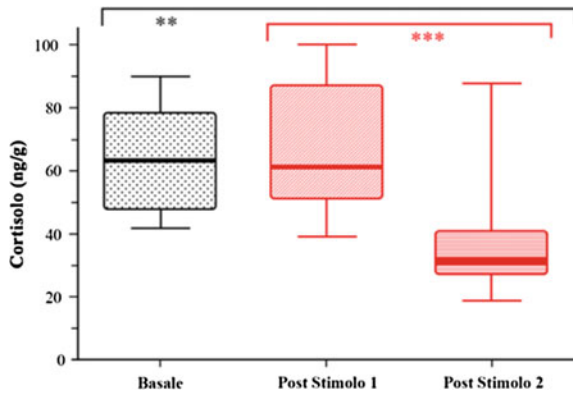
Fig. 5 Standardized protocol by monitoring the animal welfare during IAA

Fig. 6 The correlation between the activity and welfare of animals (FCMC) is indicated as Cortisol (ng/ml) and Basal, Post Stim 1 and Post Stim 2

Multiple Comparison Test), the t-student test for paired data and the Pearson test and Spearman were used ($p < 0.05$). The behavioral and FCMC analysis showed statistically significant differences between the results obtained by the subjects during the first and the second exposure to the stimuli (Fig. 6). Analyzing the results obtained with the second evaluation the attitudes of the subjects and their possible employment as AAI co-therapists were recognized (Table 2). In particular, the positive behavioral ratings obtained during the first exposure to the stimuli are associated with higher FCMC, while for the second exposure to stimuli discrete ratings are associated with low FCMC variations. These differences indicate initial curiosity, accompanied by increased discomfort with unfamiliar stimuli and replaced by habituation and less discomfort when the same stimuli become known.

Table 2 Possible employment of monitored subjects as AAI co-therapists

Use yes	FCMC score evaluation < 60%
	Behavioral evaluation ≥ **Good**
Use no	FCMC score evaluation > 60%
	Behavioral evaluation ≤ **Good**
Partial use	FCMC score evaluation > 60% Behavioral evaluation ≥ **Good**
	Or FCMC score evaluation < 60% Behavioral evaluation ≤ **Good**

3   Conclusion

The aim of this work has been to provide an insight into the role of Social Agriculture. Far from being exhaustive, our analysis utilized a multidisciplinary approach in order to capture the essence of Green Care. The present paper puts the focus on the importance of green care activities and on indicators concerning the social/health dimension of agriculture and rural development. As a general requirement, indicators have to be policy-relevant [3, 6] and can guide policy-makers in their decisions; furthermore, indicators should help to identify the policy fields where action is needed. Scholars [27] argue that an improvement of knowledge and awareness about care farming is considered the key to promoting a shared recognition of care farming amongst agricultural and health care agents, and as well as following up institutionalization of care farming arrangements in policy frameworks. We have provided an extension to the multi-level dimension of agriculture, as asked for in EU policies and in previous studies [28–35]. In line with these studies, we argue that a new rural paradigm stands out and, furthermore, we highlight that this paradigm strengthens solidarity, trust, proximity, emotional states, psychological well-being such as NCOs. To conceptualize and formalize we have defined the Multifunctional Agricultural House starting from the House of functions by [2] by taking into account the educational and relational dimension of the agricultural system.

Moreover, we have used insights from existing policy reports and scientific studies in order to define indicators focusing on the educational/social dimension and behavioral and welfare assessment.

For the behavioral evaluation and the welfare assessment of the subjects to be employed in the AAI the results showed statistically significant differences between the subjects during the first and the second exposure to the stimuli.

Analyzing the results obtained with the second evaluation the attitudes of the subjects and their possible employment as AAI co-therapists were recognized.

In particular, the positive behavioral ratings obtained during the first exposure to the stimuli are associated with higher glucocorticoid levels, while for the second exposure to stimuli discrete ratings are related with low hormonal levels variations.

These differences indicate initial curiosity, accompanied with increased discomfort with unfamiliar stimuli and replaced by habituation and less discomfort when the same stimuli become known.

Our study showed that he experience of educational, therapeutic and rehabilitation interventions in the farm (AAI in the particular case) and a comparison between traditional rehabilitation workers and complementary rehabilitation interventions. However, it is possible to report that the follow-up in both adult and minor patients is an improvement in the global, in the quality of life, in the implementation of consequent objectives.

We, therefore, underline the importance to analyze further details of the methodology for constructing indicators. In future studies, we will test our hypothesis by investigating initiatives in care farming and evaluating them by means of the indicators elaborated. Much more remains to be done.

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