

**INFLUENCE OF ATTITUDES, FORMATIVE AND
BIOGRAPHICAL BACKGROUND ON INTENTION OF
USE OF ANIMAL-ASSISTED INTERVENTIONS
DEVELOPED WITH DOGS. SOME CONCLUSIONS ON A
SAMPLE OF ROMANIAN STUDENTS**

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Abstract

Previous literature shows that animal-assisted interventions (AAI) have high acceptance among professionals from different fields, although this would be more related to personal experience with pet keeping than to empirical evidence of their benefits. Present study analyzes the impact of attitudes toward AAI, experience with animals, and the formative background on the intention of use for AAI in a sample of N=167 Romanian Social Sciences students ($X=21.3$, $SD=1.47$; 87% female). Measurement involved the adaptation of the CAINTAP (Attitudes Towards Dog-Assisted Interventions Questionnaire), a two-scale instrument that showed appropriate psychometric values ($RMSEA=.075$; Cronbach's alphas $>.800$ for both positive and negative attitudes scales). Two conclusions are drawn: there is a high interest in the practical applications of the AAI among consulted students (around 89%), although it does not derive from actual knowledge of their real effectiveness, but from personal interest in pets. These findings should be taken into account to facilitate the professional, based on the evidence development of AAI in Romania and other countries where they are not ingrained yet.

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Introduction

Animal assisted interventions (AAI) have been defined as “A *goal-directed intervention designed to promote improvement in physical, social, emotional and/or cognitive functioning of the person(s) involved and in which a specially trained animal-handler team is an integral part. AAI (Animal Assisted Intervention) is directed and/or delivered by a practitioner with specialized expertise and within the scope of practice of his/her profession*” (Animal Assisted Intervention International, n.d.). Animals included in AAI range from domestic pets (such as cats) to wild animals (such as reptile or amphibians), although dogs and horses represent the most frequent options (López-Cepero, Rodríguez-Franco, Perea-Mediavilla, Blanco et al., 2014; Marino, 2012).

AAI yield on the benefits demonstrated by human-animal interaction (HAI) in order to enhance outcomes associated with professional practice. Previous literature supports different benefits regarding physiological functioning (improvements of biological correlates to stress responses, such as the decrease of cortisol, epinephrine and norepinephrine, and the increase of oxytocin segregation; Barker, Knisley, McCain, Schubert, & Pandurangi, 2010; Beetz, Uvnas-Moberg, Julius, & Kotrschal, 2012), emotional wellbeing (Barker & Wollen, 2008) and social interaction (O’Haire, 2010). Interest on HAI benefits has gathered a progressive attention on last decades (Hosey & Melfi, 2014), and they are expected to gain a stronger presence in fields such as psychology and anthropology in the following years (Amiot & Bastian, 2015).

Many authors have highlighted some weaknesses that are frequent in available literature on AAI, such as the high presence of anecdotal reports when assessing intervention programs (Kazdin, 2010; Marino, 2012) and the existence of a clear gap among professional practice and research (López-Cepero et al., 2014). However, different meta-analytic reviews have shown AAI to be effective in a variety of contexts and groups: people with emotional disorders (Nimer & Lundhal, 2007; Souter & Miller, 2007), autistic spectrum disorders (Nimer et al., 2007) and recovering from surgery and/or hospitalization (Halm, 2008), among others. In sum, AAI have so far

demonstrated their utility, although more controlled research on their outcomes and efficiency is still required.

AAI have started to receive an increasing attention in Romania, specially under the umbrella term Animal Assisted Therapy (AAT). Among principal milestones of this development we can cite the foundation of the *Research Institute of human-animal interaction* (ICIOA) in 2012, as an initiative of the Faculty of Psychology and Sciences of Education, Babes-Bolyai University Cluj-Napoca in collaboration with University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca and Zoological Garden from Turda, Romania. Some literature can also be found, regarding human-animal interaction (Rusu, 2012; *first edition* 2008) and the improvements of social skills associated to AAT among children with autism (Grigore & Rusu, 2013; 2014), and some non-profit organizations devoted to AAT have been created (i.e. Dog Assist Association). However, AAT are still far from being ingrained as a regular intervention option, not being included (to the best of our knowledge) in any courses of social or health graduate studies (although some post-graduate specialization is already available).

Positive attitudes towards AAI have been found in prior studies carried out in other countries. Quantitative studies have consistently found positive attitudes among current and training professionals such as social workers (Risley-Curtiss, 2010), occupational therapists (Velde, Cipriani, & Fisher, 2005), mental health workers (Berget, Ekeberg, & Braastad, 2008; Berget & Grepperud, 2011; Berget, Grepperud, Aasland, & Braastad, 2013; Black, Chur-Hansen, & Winefield, 2011) and university students of different professional fields (López-Cepero, Perea-Mediavilla, Tejada, & Sarasola, 2015; Perea-Mediavilla, López-Cepero, Tejada, & Sarasola, 2014). Intention of use is reported by over 80% of participants (Berget et al., 2013; Perea-Mediavilla et al., 2014), but some studies highlight that formative background or direct experience seem to have limited influence on expectative towards their capabilities and limitations (López-Cepero, Perea-Mediavilla, Sarasola et al., 2015).

Focusing on Romanian population, many interest indicators on the domestic animals welfare can be described: first, the law 205/2004 represent a legal framework, as it ensures the adequate living conditions of animals with or without owner (*cited in* the Official Journal of Romania; Monitoru Oficial al Romaniei, 2004); second, the survey about *the problem of community dogs*

developed by the Romanian Institute for Evaluation and Strategy (Institutul Roman pentru Evaluare si Strategie, 2013) shown that population considered that Government is responsible for stray dogs; and third, Eurobarometer surveys show that Romanian population interest in animal welfare is above means obtained by European Community countries (European Commission, 2007). However, less is known about the attitudes towards the inclusion of animals in intervention contexts held by Romanian population in general, or among social and health professionals in concrete.

In sum, the inclusion of animals in intervention contexts represents a complementary resource that can enhance both outcomes and wellbeing, but, prior literature has pointed out that AAI are relatively unknown among current and training professionals, whose decision of using or not this resource may be more related to personal background (such as experience looking after pets) than to scientifically-grounded knowledge. As this fact represents a risk for the health and wellbeing of potential users, and taking into account that the development of AAI in Romania is still incipient, learning about Romanian population attitudes and biases towards AAI is fully justified in order to help developing them in the near future.

Objectives

The present study provides three-folded information: first, it explores the intention of use of AAI among training social workers and sociologists; second, it develops a validation of the CAINAP (López-Cepero, Perea-Mediavilla, Tejada, & Sarasola, 2015), an instrument devoted to assess attitudes towards dog assisted interventions; and third, it explores the influence of demographic, biographic and formative background on intention of use.

Method

Participants

Present study included data reported by N=167 participants that were enrolled in Social Work (147) and Sociology grade studies (20) in a public north-east Romanian University. 87% of respondents reported being female

(reference proportion of female for sampled faculty was 70%) and 72% reported having at least one year of professional experience (due to social work employment, voluntary participation or practical stages). Average age for the total sample was $X=21.23$ ($SD=1.68$ years; range between 19-28 years old), and there were no differences in age regarding gender ($p=.162$) or professional experience ($p=.881$). All participants accepted to take part on the study voluntarily.

Instruments

Researchers administered a survey that included three parts. First, participants reported socio-demographic information (age in years, gender, course enrolled, and working experience). The second part of the survey gathered biographic and formative background (experience with pets, knowledge of which species could take part of AAI, education and experience regarding AAI), as well as interest on developing AAI in professional career, to be responded in a 4 options scale (measuring agreement from *1-Not at all* to *4-A lot*, or frequency from *0-Never* to *3-All the time*). Finally, it was included a translated and adapted version of the CAINTAP (an acronym for *Attitudes towards Dog Assisted Interventions Questionnaire*; López-Cepero, Perea-Mediavilla, Tejada, & Sarasola, 2015) to Romanian (refer to Append).

CAINTAP is a 20-items instrument based on *Brisbane Attitudes Towards Animal Assisted Therapy* (Moody, O'Rourke, & King, 2002) that measures expectations and beliefs related to the inclusion of dogs in working centers. It was adapted to be of application to both professionals and students, with independence of their field of interest (i.e. communitarian interventions, health professions, education, etc.) Starting with a 22 items pool, previous exploratory analysis shown a two-scales solution, factors that were coined as positive ($N=11$) and negative attitudes ($N=9$ items). This solution demonstrated adequate reliability among Spanish university students (Cronbach's alphas around .88 for both factors; López-Cepero et al., 2015). Present study included the full pool of 22 items, in order to check fit goodness of both solutions provided by Moody et al. (2002) and López-Cepero et al. (2002).

Procedures

The translation of the CAINTAP questionnaire was confronted with Romanian social work and sociology specialists. The participation to the study

was voluntary, and participants assented to take part of the study after instructions (including study objectives, procedures to keep anonymity and the possibility of discontinuing participation without any penalties) were given. The completion of the questionnaires was assisted by three PhD candidates in sociology. An e-mail address devoted to give answer to any doubts or petitions related to this participation was proportionated.

Statistical procedures included descriptive analysis (central tendency and dispersion measures), means comparisons (Student's T test for independent samples) and a confirmatory factor analysis (CFA), performed using the statistical package AMOS 22 by combining two complementary strategies (as recommended by DiStefano and Hess, 2005). The first strategy used measures of fit based on minimum sample discrepancy function, CMIN/df (<5), population discrepancy, RMSEA (<.08), and baseline comparisons, CFI (>.90). The second strategy used measures of parsimony, including ECVI and testing different theoretically based models. Cut points were taken from Arbuckle (2011) and Arias (2008).

Results

First, descriptive information regarding which animal species were associated to AAI was collected. Around two-thirds of participants (64.5%) reported to identify concrete species, among which dogs represented the main option (selected by 86%), followed by cats (13%) and other such as horses or birds (4.6%).

Regarding interest on AAI, a majority of participants (89.0%) reported being interested in some degree in participating in these interventions if they were to be developed in their working centers, although a vast majority of them (95.7%) accepted to have no academic training at all. Thereby, around 85% of participants were inclined to develop AAI, although they had no formative background on this regards (Table 1).

Table 1. Interest on participating in AAI and formative background (N=163). *Any interest* and *Any background* collapse all responses from *little to a lot*

Interest on taking part on AAI	Formative background		Total
	Not at all	Any background	
Not at all	18 (11.0%)	0 (0%)	18 (11.0%)
Any interest	138 (84.7%)	7 (4.3%)	145 (89.0%)
Little	46 (28.2%)	4 (2.5%)	50 (30.7%)
Some	55 (33.7%)	2 (1.2%)	57 (34.9%)
A lot	37 (22.7%)	1 (0.6%)	38 (23.3%)
Total	156 (95.7%)	7 (4.3%)	163 (100%)

In order to extract accurate information on attitudes towards introduction of dogs as complementary resource in interventions, preliminary psychometric analysis on the translated version of CAINTAP (López-Cepero, Perea-Mediavilla, Tejada et al., 2015) was developed. Regarding questionnaire structure, two different confirmatory factor analysis (CFA) were carried out using IBM AMOS software (v22), including the original 22 set of items of CAINTAP. First CFA tested the fit of data to the original 4 factor solution (22 items; Moody et al., 2002), while the second CFA tested the 2-factor solution proposed by López-Cepero, Perea-Mediavilla, Tejada et al. (20 items; 2015). The 2 factor solution achieved better fit for the data, with all calculated indexes surpassing those obtained by the 4 factor solution (Table 2). Having a closer look of these results, it was found that CFI kept slightly under the proposed cut-off point, although the remaining indexes (X^2 , CMIN/ df , and RMSEA) met the thumb rules present in literature (tables and figures are available upon request).

In sum, these results backed the use of the 2 factor solution for CAINTAP. Bivariate correlation between positive and negative attitudes scales reached $r=-.437$ ($p<0.001$), similar to values found by López-Cepero, Perea-Mediavilla, Tejada et al. (2015).

Table 2. Fit indexes for the 2 and 4 factor models

	4 factor solution (Moody et al., 2002)	2 factor solution (López-Cepero et al., 2015)
χ^2	476.039	326.316
<i>df</i>	203	169
CMIN/ <i>df</i>	2.345	1.931
RMSEA	.090	0.075
CFI	.783	0.867
ECVI	3.735	2.701

Reliability was estimated using Cronbach's alphas, which clearly surpassed the >.700 cut-off point. Alphas achieved .817 for positive attitudes and .860 for negative attitudes (close to values presented in the original validation). Scale reliability registered no relevant improvement by removing any items, so researchers kept the full 20 items set proposed by López-Cepero, Perea-Mediavilla, Tejada et al. (2015).

Finally, a lineal regression analysis was carried out in order to detect the extent of the impact that different demographic, experiential and formative variables could have on the intention of taking part of AAI. A closer look to response frequencies shown that six variables registered enough variability to be included into a regression equation (i.e. 90% of participants had never took participated on AAI; 96% had no training; and 70% had never looked after farm animals, so these were removed from the analysis). Age and gender of respondents were included in the analysis. Table 3 summarizes their descriptive information.

Table 3. Descriptive information for the eight independent (IV) and the dependent (DV) variables. Gender means $X=1.87$ indicates that 87% of participants were female

	<i>N</i>	Range	<i>X</i>	SD	Asymmetry (SE)	Kurtosis (SE)
(IV) Age (in years)	167	19-28	21.29	1.474	1.412 (.188)	3.617 (.374)
(IV) Gender (1-male, 2-female)	160	1-2	1.87	.339	-2.205 (.192)	2.897 (.381)
(IV) Taken care of pets	166	0-3	1.70	1.141	-.129 (.188)	-1.448 (.375)
(IV) How positive was it	150	1-4	3.21	.985	-1.110 (.198)	.163 (.394)

Table 3. Descriptive information for the eight independent (IV) and the dependent (DV) variables. Gender means $X=1.87$ indicates that 87% of participants were female - *continued*

		<i>N</i>	Range	<i>X</i>	SD	Asymmetry (SE)	Kurtosis (SE)
(IV)	Info in mass media	167	1-4	2.05	.813	.662 (.188)	.230 (.374)
(IV)	Scientific literature	166	1-4	1.69	.791	1.053 (.188)	.719 (.375)
(IV)	CAINTAP-Positive	158	11-55	38.66	5.933	-.250 (.193)	.820 (.384)
(IV)	CAINTAP-Negative	159	9-45	27.41	6.242	-.220 (.192)	.263 (.383)
(DV)	Interest on developing AAI	166	1-4	2.70	.950	-.178 (.188)	-.899 (.375)

Lineal regression equation explained over 40% of variance ($R^2=.457$; *adjusted R*²=.420) and included three predictive variables: the quality of experience on taking care of pets and both scales of CAINAP (negative and positive attitudes towards AAI). Gender and age of respondents, as well as their level of information regarding AAI, did not reached statistical significance (Table 4).

Table 4. Lineal regression coefficients related to the intention of taking part on AAI

	Non standardized		Standardized	<i>t</i>	<i>P</i>
	B	ES	Beta		
(Constant)	-.073	1.244		-.059	.953
Gender	.084	.190	.032	.443	.658
Age (in years)	.042	.046	.064	.919	.360
Taken care of pets	.126	.082	.140	1.539	.127
How positive was it	.251	.091	.256	2.753	.007**
Info in mass media	.090	.102	.077	.888	.376
Scientific literature	.110	.099	.094	1.111	.269
CAINTAP-Positive	.034	.013	.215	2.554	.012*
CAINTAP-Negative	-.037	.013	-.235	-2.866	.005**

Conclusions

Animal-assisted interventions have grown steadily over last years, demonstrating their capability in improving health and wellbeing of specific groups, and with many of the most representative journals already indexed in

JCR/SJR (such as *Anthrozoös* or *Society and Animals*), or being fostered by main organizations around the World (such as *Human-Animal Interaction Bulletin*, maintained by section 17 of the American Psychological Association). However, depending of the country, high levels of variability of acceptance and knowledge among professionals can be found. Present study represents the first approximation to attitudes held by future professionals towards the inclusion of animals in social and communitarian intervention programs in Romania, and it provides new, more detailed information on the possible effect that the personal and formative background may have on intention of use of AAI, building on previous literature.

First, the popularity of dog as the best-adapted animal to be introduced in intervention contexts was clear, result that is compatible with most scientific literature available (López-Cepero et al., 2014; Marino, 2012). Cats appear as the second option, with similar figures when compared to similar studies developed among Spanish samples (Perea-Mediavilla et al., 2014), but horses were selected only marginally, something that does not match their presence on scientific and applied fields. Provided the low percentage of participants that reported having some level of actual training on AAI, it can be understood on a cultural basis, and should be explored in order to adapt programs to local population preferences when possible.

The second conclusion drawn from the study yields on a phenomenon that reproduce what has been found in samples from other countries: most participants (90%) reported some interest in taking part in AAI (around 60% showed medium or high interest), although only 4% of them had any training on the field. In addition, information regarding AAI demonstrated to play no role on the intention of developing these programs. These results build on prior findings on American (Risley-Curtiss, 2010), Australian (Black et al., 2011), Norwegian (Berget et al., 2007), and Spanish samples (López-Cepero, Perea-Mediavilla, Sarasola et al., 2015), highlighting a double-faced reality: that most participants would willingly enroll in these programs, although they have no scientific, empirically-grounded arguments to determine their adequacy in terms of efficacy and efficiency. Ultimately, this may represent a risk for the people that may benefit from the interventions, which implies the urgency of including information regarding AAI in formative curricula, as well as developing more efforts in order to disseminate accurate information on their capabilities (and limitations).

In a third group of results, it should be remarked that present study provides psychometric data on an instrument devoted to assess attitudes towards AAI including dogs. The CAINTAP, an instrument based on BATAAT (Moody et al., 2002), had so far been validated in Spanish university students (López-Cepero, Perea-Mediavilla, Tejada et al., 2015). Data provided by Romanian students demonstrated an adequate fit of the 2-factor structure, surpassing the 4-factor alternative solution, with strong reliability indexes. Moreover, the study presents new results on the relationship among both scales of CAINTAP and the intention to develop AAI, adding new evidence of its predictive validity.

Of course, conclusions must be taken cautiously. First, possible limitations related to the sampling methods should be taken in account, as well as a the limited number of participants and the fact that only Social Sciences students took part of the study; second, it would be of interest to take a closer look on the validity of the instruments used to measure biographical and formative background, for each variable was measured using a single, 4 levels scale that has not been previously validated (although they are more detailed than the original, binary version of López-Cepero et al., 2015). And third, there are concerns regarding the use of interest on participating in AAI as the only criteria to determine if participants would really do so. Thereby, generalization of these findings to Romanian population should be avoided until new studies are developed.

However, it should be highlighted that present study represents the first research effort devoted to analyze attitudes towards AAI among Romanian professionals in training, allowing us to demonstrate a double sided reality: the high intention of use, and the low presence of scientific, empirically-grounded information among trainees. In addition, it provides psychometric information on the Romanian version of CAINTAP, adding a new validated instrument of interest for professional practitioners (i.e. it can be used to detect fears towards AAI held by other practitioners, prior to attempt to develop these interventions in nursing homes, etc.), providing results that may be compared with those found in other studies and leading to take into consideration the possible existence of cross-cultural phenomena that may bias perceptions towards AAI. Due to this respect, it would be of interest to gather more ample samples, both in Romania and in other countries, in order to check the invariance of the findings.

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APPEND

Romanian version of *Attitudes towards Dog Assisted Interventions Questionnaire* (CAINTAP)

Acum vom prezenta o listă de situații care se pot întâmpla atunci când am adus câini din cadrul asociației INTAP într-o organizație precum cea în care ați dori să lucrați sau în care lucrați deja. Folosind aceeași scală ca înainte (de la dezacord puternic -la stânga la acord puternic -la dreapta), vă rugăm să indicați nivelul de acord pentru următoarele declarații:

		Total Dezacord	Dezacord	Nici acord nici dezacord	De acord	Total de acord
1	Câinii vor dori mai degrabă să latre în centru	1	2	3	4	5
2	Personalul ar avea mai puțin de lucru	1	2	3	4	5
3	Câinii sunt susceptibili de a urina / defeca în centrul / unitate	1	2	3	4	5
4	Intervențiile asistate de câini vor îmbunătăți imaginea publică a centrului/unității	1	2	3	4	5
5 ^R	În acel centru / unitate nu este un loc pentru a dezvolta acest tip de intervenții (cu câini)	1	2	3	4	5
6	Câinii sunt susceptibili de a agrava unele probleme respiratorii	1	2	3	4	5
7*	Alergia față de câini poate fi o problemă	1	2	3	4	5
8*	Câinii ar putea distra atenția oamenilor de la grijile lor	1	2	3	4	5
9	Câinii sunt susceptibili de a mușca participanții/clientii	1	2	3	4	5
10	Intervențiile asistate de câini pot ajuta participanții să se relaxeze	1	2	3	4	5
11	Câinii vor aduce căpușe sau purici în centru / unitate	1	2	3	4	5
12	Câinii vor răspândi infecții (paraziți, bacterii, ciuperci ...)	1	2	3	4	5
13	Personalul va fi de acord să dezvolte intervenții asistate de câini	1	2	3	4	5
14	Aceste intervenții asistate de câini vor face centrul/unitatea un loc mai fericit	1	2	3	4	5
15	Câinii ar putea strica în centru unele instrumente sau facilități	1	2	3	4	5
16	Centrul / unitatea poate fi un loc de muncă mult mai interesant	1	2	3	4	5
17	Câinii sunt susceptibili să-i zgârie pe participanți în timpul sesiunilor de intervenție	1	2	3	4	5
18	Câinii pot ajuta personalul să fie mai relaxat	1	2	3	4	5
19	Acest nou program poate reprezenta o activitate valoroasă pentru centru / unitate	1	2	3	4	5
20	Rudele participanților/clientilor vor fi de acord cu dezvoltarea de intervenții asistate de câine	1	2	3	4	5
21	Participanții vor găsi interesante intervențiile asistate de câine	1	2	3	4	5
22	Câinii pot provoca disconfort la non-participanți	1	2	3	4	5

^R Reverse item. * Removed in the final 20-item set (López-Cepero et al., 2015).

Spanish, Portuguese and English versions of CAINAP available upon request.