

Evaluation of the efficacy of behavioural advice in decreasing the relinquishment of shelter dogs: a pilot study



State of the art and aim of the study - The return to the shelter of adopted dogs is a frequent occurrence, mainly due to behavioural disorders. Aim of this research was to evaluate whether behavioural advice to the owner at the moment of adoption could be useful in preventing behavioural disorders and decrease the return rate of dogs to the shelter.

Material and methods - The study involved 50 shelter dogs (25 subjects in the experimental group and 25 in the control group) and their adoptive families. Before the adoption only the families of the experimental group received standardised behavioural advice from a Veterinary Specialist in Behavioural Medicine. All dog behaviours were monitored through a follow-up questionnaire for 6 months after adoption.

Results and discussion - Six dogs were returned to the shelter; two were part of the experimental group (one was brought back because of destructive behaviour, the other because of family matters) and four dogs belonged to the control group (two subjects were returned because of aggressiveness toward the owners, one dog because of family management problems and the other due to family matters).

The owners of both groups reported cases of aggressiveness and inappropriate elimination; these behaviours decreased during the follow-up period.

Our preliminary results did not show any significant statistical differences between the two groups of dogs, probably because of the low number of subjects in this pilot study. Increasing the sample size could clarify the importance of correct owner education before dog adoption.

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INTRODUCTION

Shelter dogs are heavily exposed to many causes of stress; these include the presence of high noises, distortion of their routine, a new environment, the lack of interaction with conspecifics and humans and, in general, the lack of control over environmental contingencies^{1,2,3}. The negative consequences on the wel-

fare of dogs resulting from social isolation caused by often solitary confinement in small spaces are numerous and often evident. Animals forced to live in environments with spatial and social restrictions, especially if left in such conditions for long periods of time, tend to develop behavioural disorders^{5,6,7}.

In many cases, the negative impact of life in shelters

is not immediately obvious and may appear after adoption into a new home, with a major impact on the animal's fate. The study by Wells and Hepper⁷ shows that 68.8% of all adopters encounter behavioural problems during the first month post-adoption. The most common problems reported by owners of shelter dogs during the immediate post-adoption period are aggression, hyperactivity, problems of incompatibility with an existing pet, excessive vocalisation, destructive behaviour and inappropriate elimination. Behaviours related to states of anxiety, especially when the dogs are left alone, and a sometimes morbid attachment to the new family, were also frequently encountered^{7,8}. The manifestation of undesirable behaviours is the most frequent cause of relinquishment of shelter dogs^{2,7,9,10,11}.

With regards to the number of subjects returned to shelters, the literature reports a post-adoption return rate ranging from 6.5% to 50%, with a significant number of dogs relinquished within the first month of adoption^{7,12,13}. The subjects returned to shelters because of behavioural problems are apparently mostly medium-, large-size, intact, male dogs, under two years of age^{7,12}. The study conducted by Salman *et al.*¹⁴ showed that 58% of the owners who come to the decision of relinquishing their pet interpret the inappropriate behaviour as done «out of spite» and 34% react to such behaviours with physical punishment.

Most adoptions fail because of behavioural problems.

In addition to behavioural problems there are also other reasons, albeit to a lesser extent, that can push the owner to return the dog to the shelter. Among these, the most common are family matters (diseases, separations, etc.), changes within the family or transfer to another dwelling, lack of time to devote to the animal or inability to cope with the maintenance cost of the animal¹⁵.

To decrease the number of relinquishments the literature highlights the importance of introducing behavioural therapy sessions during the stay of the dog in the shelter and of increasing public awareness regarding the value of behavioural therapy⁷. Neidhart and Boyd¹⁶ suggest giving more information to prospective owners, not only concerning the health of the animals candidate for adoption but also with regards to their behaviour, providing pre-adoption counselling to potential adopters. Such counselling seems capable of favouring the education of dogs adopted from shelters by their future owners, de-

creasing the occurrence of some management problems¹⁷.

Aim of this study was to assess whether the advice given by a Veterinary Specialist in Behavioural Medicine to owners of dogs coming from shelters could be useful in reducing relinquishments caused by behavioural problems.

Aim of the study was to evaluate whether a pre-adoption meeting with the Veterinary Specialist in Behavioural Medicine may reduce relinquishments to the shelter.

MATERIALS AND METHODS

The study was carried out in a dog shelter in the province of Milan, Italy, and involved 50 dogs housed in the structure and their respective adoptive families. The subjects were divided into two groups (study group and control group), of 25 dogs each. The selection of the sample was made randomly and allocation of subjects to the study or to the control group was based on a randomised process stratified by gender and age. The groups were thus balanced for such parameters.

All the dogs in the shelter had a signalment/medical history record, with data on the age, breed, sex, date of birth and date of entrance into the shelter, cause of arrival, health status and behaviour of the subject towards other dogs and humans.

As usual, the adoptive families were selected by the shelter staff responsible for adoptions based on the presence of certain requirements, such as, for example, sufficient time to devote to the dog and agreement by all family members on the decision of adopting a shelter dog. The choice of the dog to be adopted was made by the future owners, who, accompanied by the shelter staff, could move around within the structure, view the animals housed - staying outside of the enclosures - and request information on the history of the dogs for which they showed interest.

For both the control and the study group, before entrusting the dogs to the families a meeting was organised between the shelter's staff, a Veterinary Specialist in Behavioural Medicine and the future owners. During such meeting the adopting families received a "pre-adoption" questionnaire consisting of 21 questions about the dog's future living environment, the daily time in which the dog would be left home alone, the economic expenditure planned for its maintenance and the type of reference professionals to be called on in case of occurrence of management or behavioural issues.

Each adopting family received the same standardised advice that is usually given by the staff in charge of dog adoptions, meaning some basic guidelines regarding the management of the dog (e.g., the diet to be used, which games to use, how to manage the animal when taken for a walk).

Families belonging to the study group were also provided with additional standardised advice by a Veterinary Specialist in Behavioural Medicine, aimed at building correct owner-dog communication and correct management of the dog in the presence of children (Table 1). At the end of the interview, all the families of the study group received the same information provided verbally also in written form.

One month after the adoption all 50 owners were contacted by phone or by e-mail to complete a follow-up questionnaire, consisting of 23 questions on the behavioural problems that according to the literature are the most common ones present in dogs adopted from shelters (Table 2). The same questionnaire was repeated five more times, at two, three, four, five and six months post adoption.

The dogs in the study were divided into two groups: the control group received advice regarding the dog's management; in addition, the study group also received behavioural guidelines.

The signalment/medical history record, the pre-adoption and the follow-up questionnaires were coded and entered into a Microsoft Excel worksheet. The data were analysed using descriptive statistical analysis using SPSS.22 software.

RESULTS

Analysis of the signalment/medical history records showed that the sample consisted of 11 dogs under one year of age (seven in the study group and four in the control group), 15 aged between one and three years (eight belonging to the study group and seven to the control group), 13 subjects between three and eight years (three belonging to the study group and ten to the control group) and 11 over eight years of age (seven in the study group, four in the control group).

Most of the dogs in the study were sterilised females (25 subjects, 11 belonging to the study group and 14 to the control group); the castrated males were 17 (seven in the study group and ten in the control group) and the non-sterilised puppies were four males and four females, equally divided between the two groups.

Twelve dogs were of large size (six subjects in the study group and six in the control group), 31 of medium-size (16 in the first group and 15 in the second) and seven of small size (three belonging to the study group and four to the control group).

Concerning the duration of stay into the shelter, 15

Tabella 1 - Table 1 - Brief summary of the behavioral indications provided to the 25 owners of the study group by the Veterinary Specialist in Behavioural Medicine.	
Clear and consistent dog-owner chiara e coerente	<ul style="list-style-type: none"> - Use the command "sit" to increase the predictability of owner-dog interaction - Reward behaviours that denote tranquillity - Reward desired behaviours - Establish a daily routine
Punishment	<ul style="list-style-type: none"> - Do not give physical punishments - Ignore unwanted behaviours or interrupt them with a "no"
Children	<ul style="list-style-type: none"> - Always supervise dog-child interaction - Ensure that the child has a correct interaction with the animal and does not disturb it while it eats and rests

Table 2 - Questions addressed to the 50 owners in the follow-up questionnaire.	
Aggressiveness	<ul style="list-style-type: none"> - Type and context of the aggressive manifestation - Subject victim of the aggressive manifestation
Inappropriate elimination	<ul style="list-style-type: none"> - Type, place, context and frequency of elimination
Separation anxiety	<ul style="list-style-type: none"> - Type and frequency of anxiety symptoms
Excessive barking	<ul style="list-style-type: none"> - Context and frequency of the behaviour
Management problems	<ul style="list-style-type: none"> - Type, context and frequency of the behaviour

subjects had been guests of the shelter for less than two months (nine in the study group, six in the control group), 29 subjects for a period between two and twelve months (14 in the study group and 15 in the control group) and six for more than a year (three belonging to the study group and three to the control group).

In the period of time spent at the shelter, 47 of the 50 dogs participating in the study behaved in a friendly manner towards people (23 belonging to the study group and 24 to the control group), two displayed an attitude of fear (one subject belonging the study group and one to the control group) and only one dog (belonging to the study group) had manifested an episode of aggressiveness (growling and attempted bites following manipulation by the shelter's staff).

Analysis of the pre-adoption questionnaires showed that 25 owners would have left the dog alone for less than four hours a day (11 belonging to the study group and 14 to the control group), 24 families for a daily time period between four and eight hours (13 of the study group and 11 of the control group) and only one (part of the study group) for more than eight hours.

With regard to the expected economic expenditure for the maintenance and care of the adopted animal, 18 people said they had expected an annual expenditure below one thou-

sand euro (ten belonging to the study group and eight to the control group), 30 adopters expected to spend between a thousand and two thousand euro per year (14 in the study group and 16 in the control group), while two people, one belonging to the study group and one to the control group, expected to spend more than two thousand euro.

The section of the questionnaire concerning the reference professionals to be contacted in case of appearance of management or behavioural issues (excessive barking, destructiveness, inappropriate elimination) showed that, in such an event, the majority of the owners would have contacted a dog trainer. However, in case of aggressiveness they would have preferred to contact a Veterinary Specialist in Behavioural Medicine (Chart 1).

Of the total number of dogs adopted (control and study groups) six dogs were returned to the shelter, two subjects of the study group and four of the control group. In the study group, one subject was returned after five days due to destructive behaviour manifested inside the house; the other was returned two months post adoption due to personal problems

Six dogs were returned to the shelter, four of the control group and two of the study group.

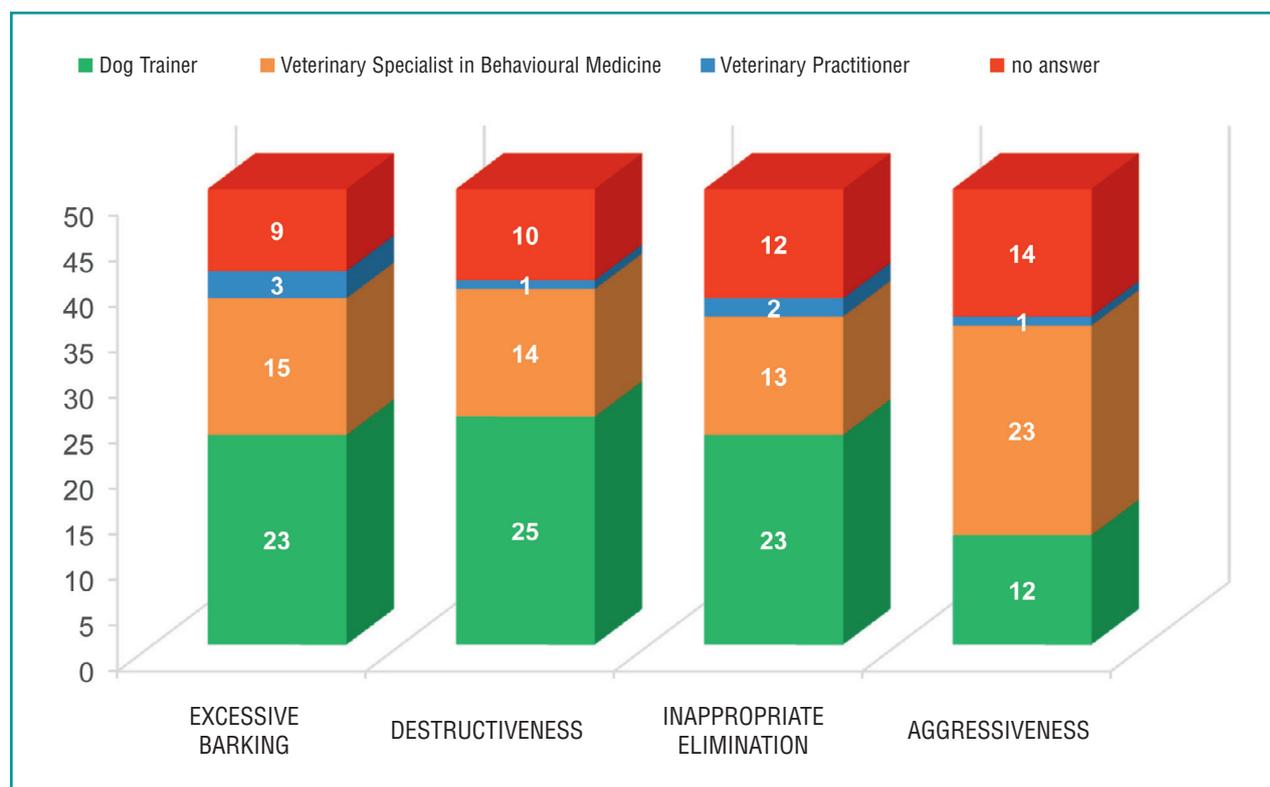


Chart 1 - Reference professionals for the owners in case of occurrence of behavioural or management issues.

Table 3 - Characteristics of the dogs returned to the shelter after their adoption.

	1 Study	2 Study	1 Control	2 Control	3 Control	4 Control
Breed	mongrel	mongrel	mongrel	mongrel	mongrel	mongrel
Sex	FS	MI	MC	FS	MC	MC
Size	medium	medium	medium	medium	medium	medium
Age	8 years	6 months	10 months	2 years	1.5 years	1 year
Origin	relinquished	Southern Italy	Southern Italy	caught	relinquished	relinquished
Stay in shelter	1 year	2 months	2 months	1 month	1 year	1 year
timing of return	5 days	2 months	7 days	7 days	6 days	3 months
Cause of return	destructiveness	family matters	aggression against owners	aggression against owners	organisational management problems	family matters
Type of house	flat	flat	house with garden	house with garden	house with garden	flat
Children	no	no	no	yes	yes	no
Other animals present	no	no	no	no	no	no
Previous dogs	no	no	no	no	no	no

of the adopting family. Of the dogs belonging to the control group, two were returned to the shelter one week post adoption due to biting of the owners; one dog came back after six days due to difficulties in managing the dog from an organisational point of view and the other after three months due to family matters (Table 3).

At the one-month follow-up, 13 subjects of the study

group and 6 subjects of the control group displayed an aggressive behaviour (growling and/or attempts to bite family members). Episodes of aggressiveness mostly occurred during entry and exit from the house and gradually decreased in both groups in the subsequent months (Chart 2).

In both the study group and in the control group six subjects displayed inappropriate elimination (two in

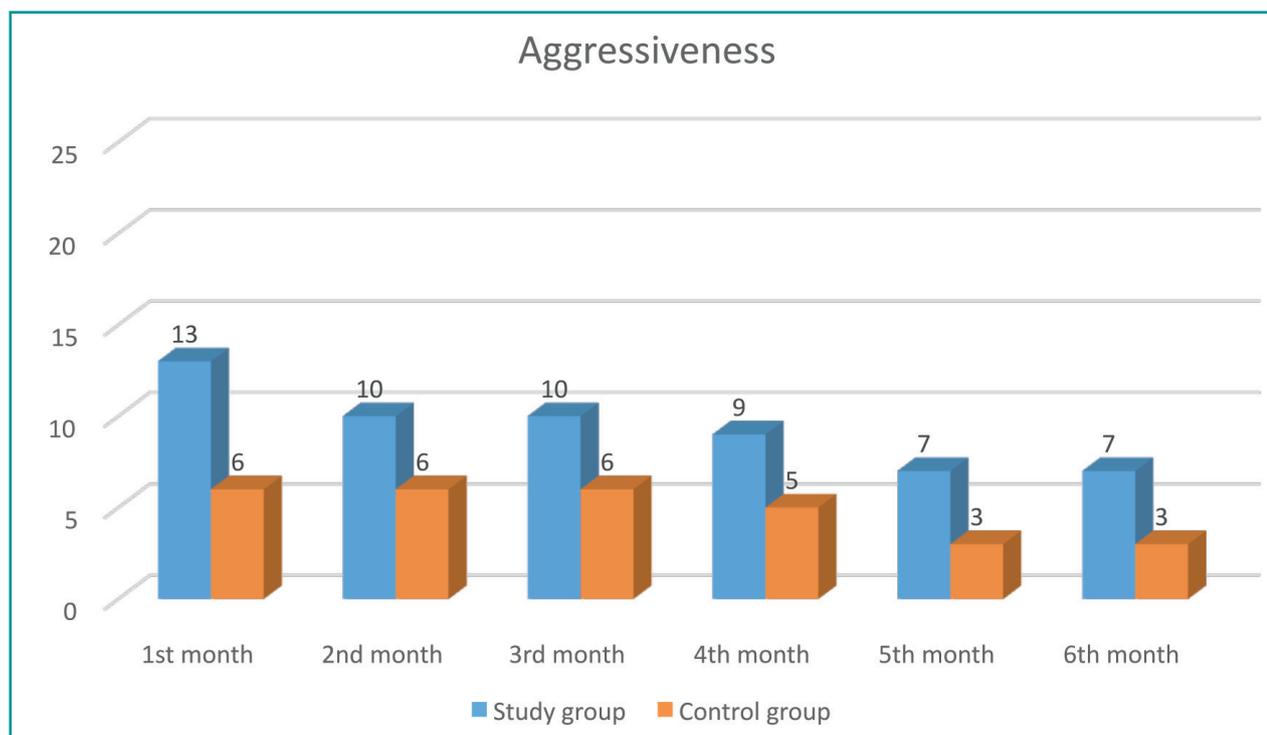


Chart 2 - Number of subjects in the study and in the control group displaying aggressive behaviour during the follow-up period.

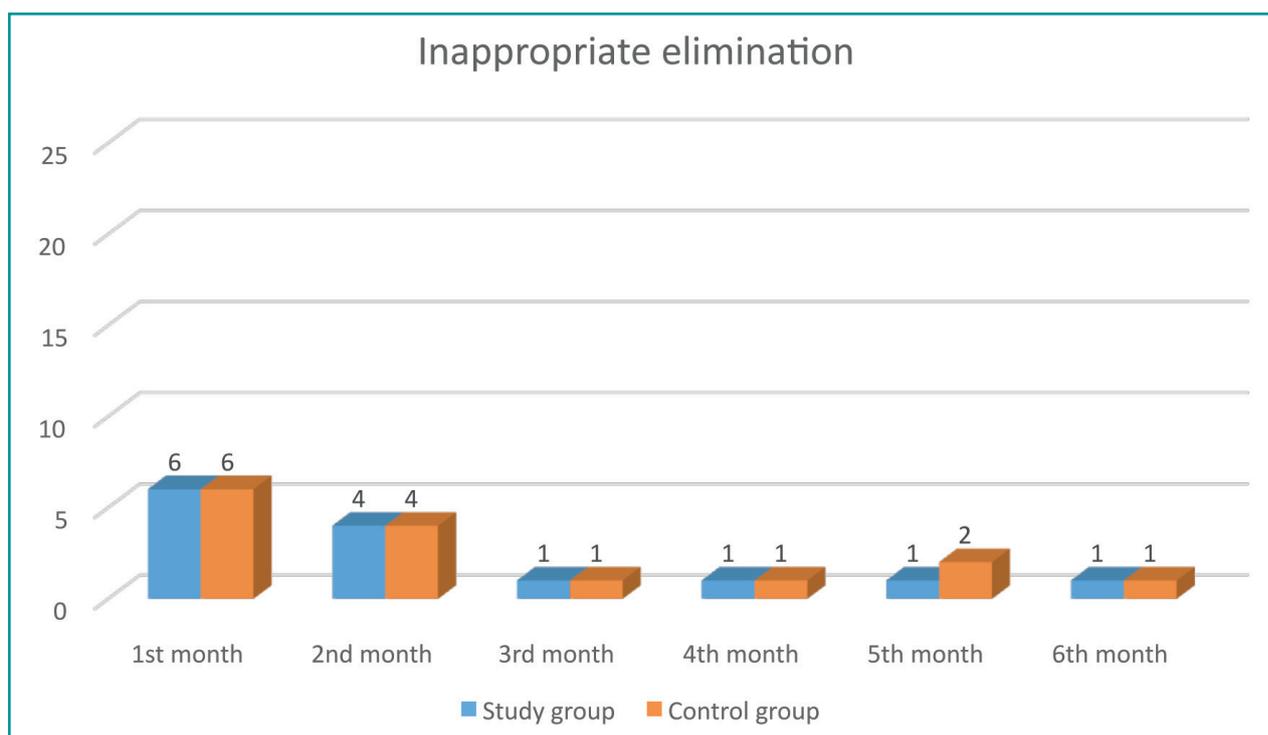


Chart 3 - Number of subjects in the study and in the control group displaying inappropriate elimination during the follow-up period.

the absence of the owners and the others both during their presence and absence) in the first month post-adoption. At subsequent follow-ups the problem gradually decreased (Chart 3).

Three owners (one belonging to the study group and two to the control group) complained about excessive vocalisation of their dog, in the presence of the owner, since its arrival in the household; two subjects, one belonging to the study group and the other to the control group, stopped manifesting such behaviour in the second month post-adoption, while the remaining one maintained it throughout the study period.

Throughout all of the follow-up meetings no owner reported changes relating to their working hours, family composition and living conditions.

DISCUSSION

In the course of the study, 12% of adopted dogs were returned to the shelter, the majority of which within the first seven days of adoption. This finding is in line with the literature, which reports relinquishments in a percentage between 6.5% and 50%, and defines specifically the first week post adoption as the

«critical period»^{7,13,18}. The physical characteristics of most of the relinquished dogs (age and size) also corresponded to what reported in previous studies^{7,12,19}. The young age and the medium-large size may in fact be related to a greater difficulty in managing such subjects, in comparison with older and smaller dogs²⁰. In view of the limited number of dogs returned to the shelter it was not possible to show any correlation between the decision to return the animal and the type of living conditions or the presence of children in the family. It is however worth noticing that all of the six families that returned their dog to the shelter had no prior experiences with dogs. This finding is in agreement with the study of Salman *et al.*¹⁴, which confirmed that lack of experience and inadequate expectations relative to normal dog behaviour are among the main reasons for the relinquishment of dogs to shelters.

Concerning the reasons that caused the return of the dogs in our study, cases of aggression and destructiveness appear in percentages lower than those reported in previous studies. Contrary to what has been shown in the literature, in our study no relinquishments were caused by other behavioural disorders⁷. Half of the families which returned the dog to the shelter said to have done so as a result of family or organisational issues. In the literature, no percentages are reported assessing the frequency of returns caused by such circumstances, although these were

In agreement with what reported in the literature, most relinquishments occurred during the first week post adoption.

listed as possible causes of abandonment or relinquishment by Marston *et al.*²¹.

Episodes of interspecific aggression were exhibited by dogs belonging to both groups, with a mean value almost two times greater in the study group compared to the control group. Manifestations of aggression found in our study are in agreement with the literature, which highlights how such behaviour is one of the most complained about by adopters of shelter dogs. In agreement with what reported by other Authors, such behaviours occurred in the first month of the adoption, and then decreased during the follow-up^{7,9,10,11,13}. In addition, it was found that most of the episodes of aggression against owners occurred at the time of entry and exit from home; this may be caused by the fact that in such circumstances there is a greater interaction between the owner and the dog, and this could generate an aggressive response due to

Aggressive behaviour and inappropriate elimination were displayed especially in the first month post adoption.

lack of trust and confidence with the new owner. Some owners complained about episodes of inappropriate elimination, particularly in the first month post adoption. Also in this case, our data are in agreement with those found in the literature; life conditions in an enclosure, without free access to a place to urinate or defecate or the guarantee of multiple and regular daily exits may predispose shelter dogs to the manifestation of inappropriate elimination in the new home. With time, and the subsequent acquisition of a solid routine, the animal usually stops displaying such a behaviour⁷.

Based on the data collected in our study, it is positive to note that most of the families came to the shelter for an adoption planning to leave the dog alone for less than four hours a day. The lack of interaction and the prolonged and repeated isolation suffered by dogs that are left alone every day for more time could result in decreased animal welfare, especially when the owners fail to compensate the lack of stimuli in other ways²².

Answers to questions about the possible onset and management of behavioural problems, including excessive barking, destruction of objects, inappropriate elimination and aggression, showed that in most cases respondents chose dog trainers as the professionals to report to in case of occurrence of such behaviours. Veterinary Specialists in Behavioural Medicine were preferred only in case of appearance of aggressive behaviours. This could be due to the fact that, to

date, the figure of the Veterinary Specialist in Behavioural Medicine is not yet known to most people, or to the owners' difficulty in recognising their dog's problem as a disorder and not as a lack of training. It would therefore be appropriate to clarify the roles of the different professionals and, at the same time, to promote interdisciplinary interventions. In this regard, it is worth mentioning that behavioural disorders, especially those related to interspecific aggression, are among the major causes of euthanasia for both owned and shelter dogs²³.

With reference to the planned spending for the maintenance of the dog, the answers given by the families in the study sample showed a correct awareness of what could be the annual economic cost for dog maintenance²⁴. Considering that economic problems are one of the reasons that explain why owners abandon or relinquish their dogs, it is positive that the families involved showed a realistic view of such issue^{21,25}.

With regards to the comparison between the study group and the control group, the limited size of the sample does not allow to reach a firm conclusion, but in view of the lower number of dogs relinquished in the study group it can be assumed that the behavioural information given to adopters by the Veterinary Specialist in Behavioural Medicine may have limited the occurrence of behavioural or management problems or may have provided the owners useful tools to address them correctly.

CONCLUSIONS

Despite the lack of significant differences between the study group and the control group, and the low sample number, the lower number of dogs relinquished in the study group lays the foundations for improved pre-adoption counselling. Providing adopters with clear and standardised information can improve owner-dog communication and therefore decrease the appearance of behavioural disorders or management issues. During the counselling sessions it may be useful to explain to the owners what the adoption of a dog means in terms of expenses, so as to ward off possible relinquishments for having underestimated such costs. Based on the results of this pilot study, the implementation of a targeted strategy for owners with no prior experience with dogs is apparently important; specific counselling programmes on human-

No statistically significant differences were found between the two groups, probably because of the limited number of subjects in the sample.

dog communication and on the animal's ethological needs may perhaps be proposed to such individuals. In addition, the possibility of encountering a Veterinary Specialist in Behavioural Medicine could perhaps encourage the owner to contact such a professional should the animal in the future present possi-

ble behavioural problems. Behavioural counselling could therefore help the human-animal relationship and decrease the number of dogs returned to shelters. Further investigation is needed to define the importance of the role of the Veterinary Specialist in Behavioural Medicine at the time of dog adoption.

KEY POINTS

- Behavioural disorders are the most frequent cause of abandonment of dogs in shelters.
- The study group received standardised behavioural guidelines while the control group did not.
- Six dogs were returned to the shelter, four subjects of the control group and two of the study group.
- No statistically significant differences were found between the two groups, probably because of the limited number of subjects in the sample.
- Further investigation is necessary to define the importance of pre-adoption counselling with a Veterinary Specialist in Behavioural Medicine.

Valutazione dell'efficacia di consigli comportamentali nella riduzione dei rientri dei cani di canile: uno studio pilota

Riassunto

Introduzione e scopo del lavoro - Il rientro in canile di cani adottati è un evento frequente e spesso causato dalla manifestazione di patologie comportamentali. Scopo di questo lavoro è stato valutare se i consigli forniti dal Veterinario Esperto in Comportamento Animale ai futuri proprietari di cani di canile, per affrontare le eventuali problematiche comportamentali dell'animale adottato, potessero essere utili nel prevenire un successivo rientro del cane nel canile.

Materiali e metodi - Lo studio ha coinvolto 50 cani ospiti di un rifugio (suddivisi in due gruppi, studio e controllo) e le relative famiglie adottanti. Prima dell'affido, è stato effettuato un colloquio tra il personale del canile, un Veterinario Esperto in Comportamento Animale e i futuri proprietari. Alle sole famiglie del gruppo studio sono stati forniti dal Veterinario Esperto in Comportamento Animale alcuni consigli relativi al comportamento canino. Il comportamento dei cani è stato monitorato telefonicamente attraverso un questionario di follow-up per sei mesi.

Risultati e discussione - Sono stati riportati in canile sei cani, due appartenenti al gruppo studio (uno a causa di comportamenti distruttivi nell'abitazione, l'altro per problemi famigliari) e quattro a quello controllo (due soggetti per aggressività verso i proprietari, uno per motivi gestionali, uno per problemi famigliari). Sono stati segnalati episodi di aggressività ed eliminazione inappropriata in entrambi i gruppi, diminuiti nel corso dei follow-up.

Non sono emerse differenze statisticamente significative tra i due gruppi di soggetti, probabilmente a causa del limitato numero del campione. Ulteriori indagini sono necessarie per definire l'importanza della corretta informazione pre-adozione del proprietario.

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