

Elżbieta BOMBIK , Jakub MANDAŁ

PRINCIPLES OF COEXISTENCE OF DOGS AND CATS SHARING A LIVING ENVIRONMENT

Department of Bioengineering and Animal Husbandry, Institute of Animal Sciences and Fisheries, Siedlce University of Natural Sciences and Humanities, Poland

Abstract. Popular opinion holds that dogs and cats are eternal enemies that are unable to communicate. In many households in Poland and other countries, they are not kept together in the home for fear of conflicting personalities or behaviour. The purpose of this study is to demonstrate that despite their many differences, dogs and cats can live together and share a living environment. To test this hypothesis, a questionnaire was created and completed by owners of animals of these two species. The questionnaire contained questions about the animals' characteristics and their behaviour towards the other species with which they coexist. Answers were provided by 87 individuals. The questionnaire consisted of closed questions with one answer or multiple answers. It was divided into three sections: questions about the respondent's cat, questions about the dog, and questions about the social behaviour of the cat and the dog. To compare the results for the two species, the answers to two of the questions were grouped into categories of behaviour. The survey showed that the respondents' pets were mainly in the age range of 2–8 years, and that mixed breeds were predominant. The results indicated that dogs and cats are largely friendly towards one another. Thus it can be concluded that these two species can live together in the same household provided that certain criteria are met. The most important of these are an adequate length of time spent in the litter with the mother, so that the animal can acquire appropriate behaviour patterns, and contact with the other species at a very early age.

Key words: dog, cat, coexistence, social behaviour.

INTRODUCTION

According to popular opinion, dogs and cats are eternal enemies, unable to communicate. In many households in Poland and other countries, they are not kept together in the home out of fear of their conflicting personalities or behaviour. Nevertheless, if a dog and cat are reared appropriately and allowed to get used to one another, a positive relationship between them may result, as these animals are to some extent able to learn behaviours and signals.

An important element of coexistence of a dog and a cat is their behaviour and instincts. An animal's behaviour is a complex system of responses to signals from its external environment or from inside the body (Kokocińska and Kaleta 2015). Instinct is an innate feature of the species which appears during embryonic development; however, it may differ slightly in individuals of

Corresponding author: Elżbieta Bombik, Department of Bioengineering and Animal Husbandry, Institute of Animal Sciences and Fisheries, Siedlce University of Natural Sciences and Humanities, Bolesława Prusa 14, 08-110 Siedlce, e-mail: elzbieta.bombik@uph.edu.pl.

the same species depending on their origin, breed, or living environment. It should be remembered that instinctive behaviour cannot be entirely eliminated, but only slightly suppressed, and this is not always appropriate for the animal's mental health. Examples of instincts include agonistic signals in dogs and cats (Bradshaw 2017, 2020). Signals sent by animals to other animals of the same or a different species are innate behaviours, which are expressed or read even by the youngest individuals. Yawning in young dogs or bristling in young cats is not necessarily the result of previous observation of this behaviour in an adult individual, as young animals are born with this instinct (Stanclik 2020). It should be emphasized, however, that not every animal is able to appropriately express or read signals, especially if the young animal is separated from its mother too soon or if it is inadequately socialized. Conditioned reflexes include social behaviours and socialization. As soon as young kittens and puppies are fully able to see, hear, smell and move independently, they enter the most important period of their lives – the socialization period. This usually takes place after four weeks of age in dogs and after two weeks in cats. This stage is characterized by high sensitivity to social stimuli, and studies indicate that the experience acquired during this period is very important in the course of the animal's life and reduces the likelihood of behavioural disorders (Horoszewicz et al. 2017; Bradshaw 2020). During this period it is important for the animal to have frequent contact with other individuals, members of other species and people, so that it will adopt appropriate patterns of social behaviour. A significant element in the early development of young individuals is play with others, during which they learn signals and self-control. Another important factor is early positive contact with a human being, during which the animal becomes accustomed to the person's smell and voice and to being stroked, played with, and picked up. Animals whose contact with people is limited during the socialization period are usually fearful, withdrawn, and reluctant to establish relationships. Studies conducted in dogs in the 20th century showed that puppies that are picked up from the age of two weeks do not differ in friendly behaviour from those that were not picked up until after they are six weeks old. In contrast, studies carried out in cats in the 1980s indicated that kittens should be picked up from the age of two weeks, because those who did not experience this until later were less inclined to establish relationships with people (Bradshaw 2020). Both cats and dogs are able to socialize with one another and to form relationships with other animal species. Dogs and cats that have contact with members of the other species from the first days or weeks of life are usually able to behave in a friendly manner towards them, especially if their mother does. Bradshaw (2020) wrote that kittens raised in a home with a friendly dog will demonstrate a liking for that dog for its entire life, as well as for other dogs that look like it. This suggests that the same may apply to puppies that are raised in a home with a cat which is friendly to them. In many cases, dogs and cats are able to form a tolerant and supportive herd that can even share bowls or beds.

Animal communication is a means of marking territory, warning others in the herd of danger, or expressing an emotional state (Kokocińska-Kusiak and Maliszewski 2017). Messages, especially scents, can also communicate information to other individuals regarding the sender's physiological state or oestrus in the female. Scent is very important in dogs and cats in the first few days of life, as they are born blind and deaf. Owing to their a well-developed sense of smell, the mother's scent and the pheromones secreted by the milk line allow them to sense her proximity and more easily find the mammary gland (Biskup 2018).

Dogs and cats unquestionably send completely different bodily and auditory messages, but this does not mean that they will not be able to communicate. The effectiveness of communication between these two species is determined by early and frequent contact with one another, during which they learn what emotions and intentions accompany a given signal. Another important factor is the animal's temperament: specifically, the more the animal exhibits a conciliatory nature and a desire for play and contact, the better it will be able to communicate

with another individual (Penar et al. 2019). Like dogs, cats are also able to communicate very well with those around them by using their bodies, which are much more agile and flexible than the bodies of dogs (Tymiński 2004). Many cats have learned that their auditory signals can influence human behaviour and that they can benefit from this, e.g. by inducing people to stroke or feed them (Schötz 2019). The most commonly distinguished sounds emitted by cats are meowing, hissing, growling, grunting, snorting, trilling, purring, and chirping.

The purpose of this study is to demonstrate that dogs and cats, despite their many differences, can live together and share a living environment.

MATERIAL AND METHODS

The hypothesis was tested by means of a social survey using a questionnaire created on Google Forms, which was completed by individuals keeping both a cat and a dog in the same home. The questionnaire contained questions about the animals' characteristics and their behaviour towards the other species. Answers were provided by 87 individuals. The questionnaire consisted of closed questions with one answer or multiple answers, depending on the nature of the question. It was divided into three sections: questions about the respondent's cat, questions about the dog, and questions about the social behaviour of the cat and the dog. For comparison of the results, the answers to two questions were grouped according to types of behaviour and presented in the form of radar charts.

RESULTS AND DISCUSSION

The characteristics and living environment of the research sample are presented in Table 1.

Table 1. Characteristics and living environment of the research sample

	Question	Cat	Dog
Age	0–6 months	8 (9.2%)	3 (3.4%)
	6 months to 2 years	27 (31%)	17 (19.5%)
	2 years to 8 years	38 (43.7%)	47 (54%)
	more than 8 years	14 (16.1%)	20 (23%)
Breed	mixed	78 (89.7%)	56 (64.4%)
	purebred	9 (10.3%)	31 (35.6%)
Where the animal lives	indoors	44 (50.6%)	42 (48.3%)
	outdoors	34 (39.1%)	23 (26.4%)
	outdoors and indoors	9 (10.3%)	22 (25.3%)
Age at first meeting	0–6 months	42 (48.3%)	33 (37.9%)
	6 months to 2 years	30 (34.5%)	26 (29.9%)
	2 years to 8 years	12 (13.8%)	21 (24.1%)
	more than 8 years	3 (3.4%)	7 (8%)
Do the animals have their own bed/ designated sleeping place?	yes	33 (37.9%)	
	no	3 (3.4%)	
	dog yes, cat no	11 (12.6%)	
	cat yes, dog no	2 (2.3%)	
	animals choose where to sleep	38 (43.7%)	

The survey showed that the respondents' pets were mainly in the age range of 2 to 8 years (cats 43.7%, dogs 54.0%), and that mixed breeds were predominant (cats 89.7%, dogs 64.4%). About half of the animals lived in the home (cats 50.6%, dogs 48.3%). The owners indicated that the first contact between the animals of different species – a cat or dog – took place between 0 and 6 months of age (cats 48.3%, dogs 37.9%). In 37.9% of cases the animals had their own bed or designated place for sleeping, while 43.7% chose where to sleep.

The behaviour of a cat when it sees an unfamiliar dog is presented in Fig. 1. The responses indicate that the most common behaviour of cats when they see a strange dog is to observe it (49.4%). In 42.5% of cases, cats run at the sight of a dog, while 41.4% take an aggressive stance by bristling and arching the tail. Attacking with claws was reported for 10.3% of cats. In 36.8% of cases, cats only hissed, growled or howled. Some cats took a neutral stance and ignored the dog (14.9%). An unfamiliar dog was approached by 12.6% of cats, and only 6.9% exhibited joy at its sight. Cats that did not encounter unfamiliar dogs accounted for 13.8%.

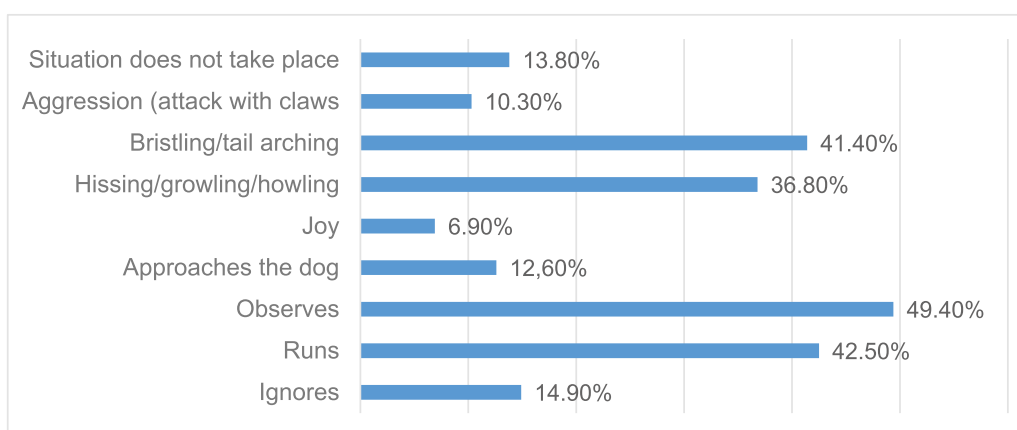


Fig. 1. Cat's behaviour on seeing an unfamiliar dog

The behaviour of a dog when it sees an unfamiliar cat is presented in Fig. 2. The responses indicate that the most common behaviour of dogs is to observe the cat (58.60%). In 44.80% of cases the dog chases the cat, while 38.90% of dogs respond joyfully to the sight of a cat. According to the respondents, 18.40% of dogs squeal, while 8.00% growl. The respondents reported that 5.70% of dogs run from the cat and 1.10% ignore it. Only 1.00% of dogs never encounter a strange cat.

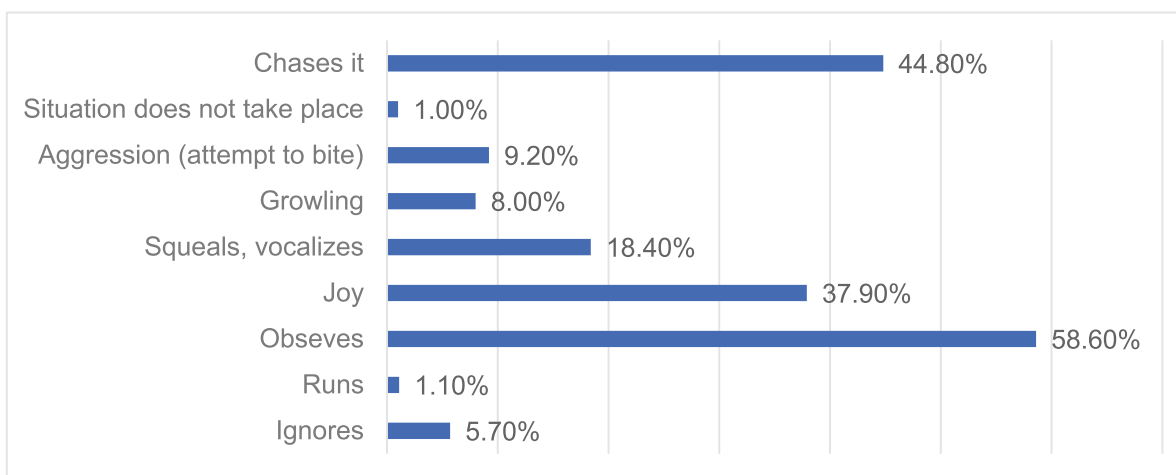


Fig. 2. Dog's behaviour on seeing an unfamiliar cat

The responses regarding a cat's behaviour on seeing an unfamiliar dog and a dog's behaviour on seeing an unfamiliar cat were grouped into categories: neutral (ignoring or observing); positive (exhibiting joy, approaching, squealing, emitting various sounds); negative (running away, hissing/growling/howling, bristling and arching the tail, attacking with claws, chasing, attempting to bite); and the absence of such situations. The behaviours of cats and dogs are shown together in the chart in Fig. 3. The responses and groupings indicate that the respondents' pets largely exhibit negative behaviour on meeting an unfamiliar individual of the other species, i.e. 57% for cats and 47% for dogs, while positive behaviour is displayed by only 25% of dogs and 9% of cats. Neutral behaviour in these situations was reported for 28% of animals of both species.

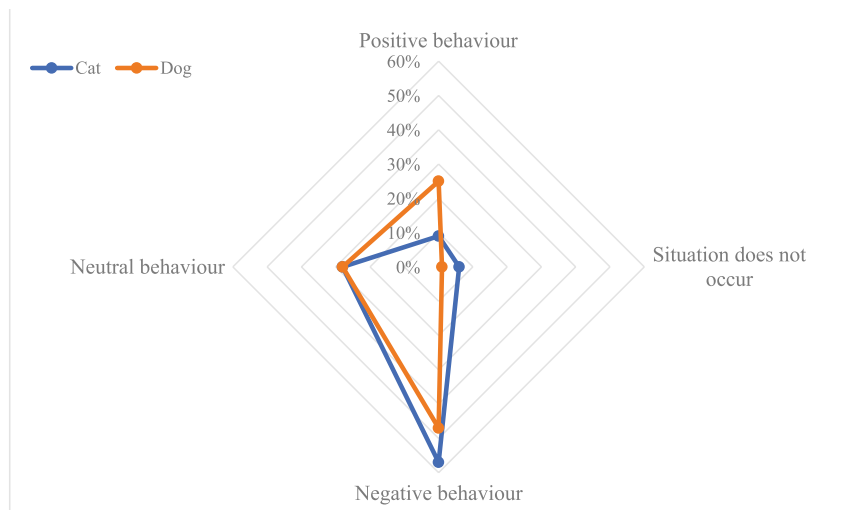


Fig. 3. Radar chart comparing dogs' and cats' behaviour on encountering an unfamiliar individual of the other species

Figure 4 presents the behaviour of a cat when a dog approaches its bowls. The survey showed that 36.60% of cats allow the dog to use their bowls, while 15.00% run away from the bowls, and 9.80% accept the presence of the dog, but do not allow it to use the bowls. According to their owners, 6.10% of cats defend their bowls with their paws, and 7.30% hiss and emit various sounds. The results showed that 3.70% of cats chase the dog away from the bowls, and 4.90% begin to eat faster when the dog is nearby. In 1.10% of cases, cats do not experience situations in which the dog approaches their bowls.

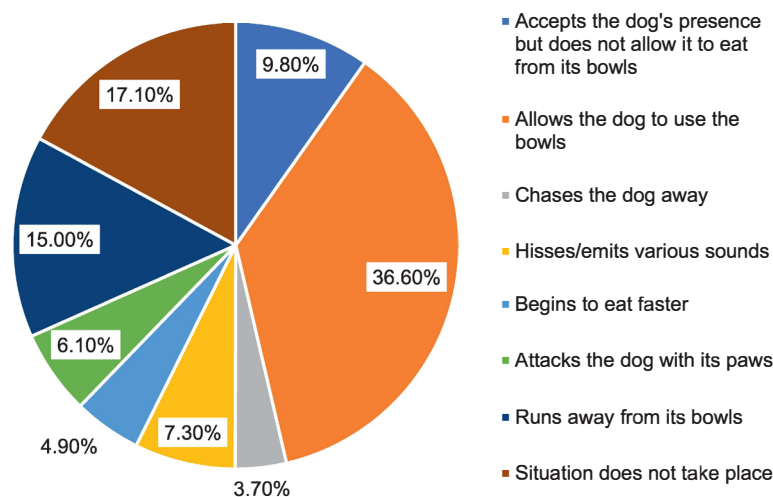


Fig. 4. Cat's behaviour when a dog approaches its bowls

Fig. 5 presents a dog's behaviour when a cat approaches its bowls. According to the respondents, 23.20% of dogs let the cat use their bowls, 18.30% chase it away, 17.10% do not encounter this type of situation, 12.20% growl or bark at the cat, 11.00% ignore the cat's presence, 9.80% accept its presence but do not allow it to eat from their bowls, 6.10% begin to eat faster, and only 2.40% run away from their bowls.

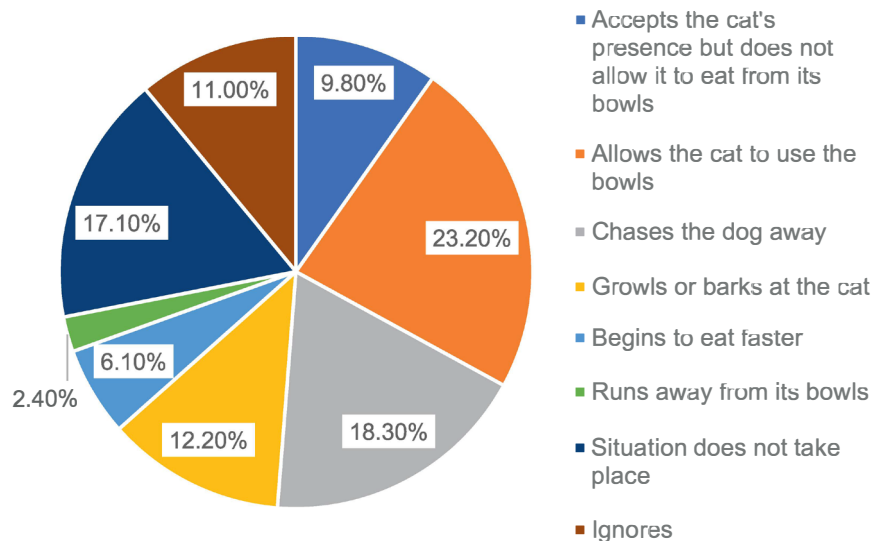


Fig. 5. Dog's behaviour when a cat approaches its bowls

The responses regarding the animals' behaviour at their bowls were divided into categories: defending the bowls (accepting the other animal's presence but not letting it use the bowls, chasing the other animal away, growling or barking, beginning to eat faster); allowing access to the bowls (letting it use the bowls or running away); and the absence of such situations. The behaviours of cats and dogs in this situation are shown together in the chart in Fig. 6. The responses show that dogs are more likely to defend their bowls (57%), with only 26% of respondents indicating that the dog lets the cat have access to its bowls. In the case of cats, 32% defend their bowls and 51% allow the dog access to them. In 17% of cases for both species, there were no situations in which the animal needed to defend the bowls or allow the other animal to use them.

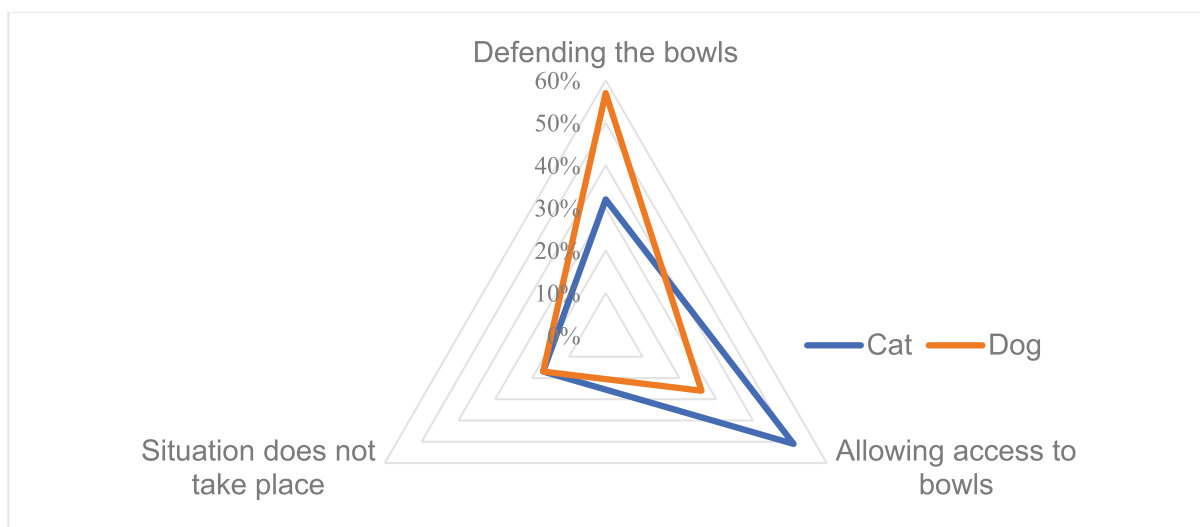


Fig. 6. Animals' behaviour at their bowls

Fig. 7 presents the behaviour of dogs and cats sharing a home during close proximity. The survey results indicate that when dogs see the familiar cat, they were most likely to sniff it (17.20%), while only 10.00% of cats behaved in this manner. Cats were more likely than dogs to ignore the other animal (13.20% vs. 10.20%). Another common response in dogs was friendly tail-wagging (16.00%), which was reported for only 3.90% of cats. The respondents indicated that 11.70% of dogs encouraged the other animal to play with it, compared to only 7.70% of cats. The tendency to touch noses was very similar in the two species: 8.10% in dogs and 8.00% in cats. Friendly vocalization was reported in the case of 6.00% of dogs and 5.10% of cats, while growling, hissing, or barking was displayed by 4.80% of dogs and 6.80% of cats. A stiff tail held up in the air, indicating interest in the other animal, was reported for 1.80% of dogs and 4.50% of cats. Friendly licking of the other animal was a response of 7.50% of dogs and 4.80% and cats. Another friendly behaviour, nestling up against the other animal, was exhibited by 6.10% of cats and 2.40% of dogs. The respondents reported that 3.00% of dogs and 4.80% of cats stiffened and stared at the other animal, while 4.20% of dogs and 3.90% chased it away. The pet owners indicated that 1.20% of dogs kept their distance from cats, while 7.10% of cats avoided dogs in this manner. The least common response in dogs was to run away immediately (0.60%), while the corresponding result for cats was 7.10%. For a clear analysis of this question, the answers were grouped as follows: negative (running away, chasing, growling/hissing/barking); neutral (no interaction, avoidance); interest (stiffening and staring, a straight tail directed upwards); positive (sniffing, touching noses, licking, tail-wagging, friendly vocalizing, nestling against the other animal); and play (lying in front of the other animal, encouraging it to play).

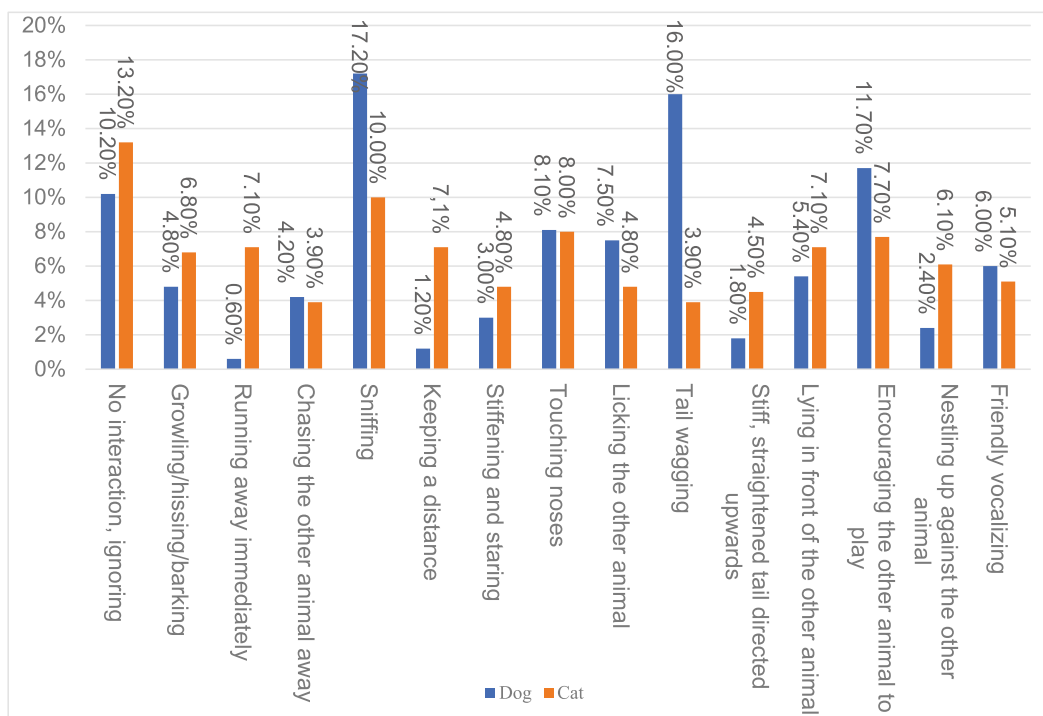


Fig. 7. Dogs' and cats' behaviour during close proximity

One of the most important objects for an animal is its food bowl, which can often be a site of misunderstandings in animals living together in the same house, especially if one of them has a strong instinct to defend its resources (Cherek 2016).

Figure 8 presents the ways dogs and cats use their bowls. Only 11.50% of respondents indicated that their dog and cat eat from the same bowl. The most common response was that the

animals eat from separate bowls placed in different rooms or locations (48.30%). Dogs and cats using separate bowls, but in the same room, accounted for 23.00%, while in 17.20% of cases the bowls were in the same room but at different heights. Placing bowls at different heights can reduce conflicts and discourage animals from eating from each other's bowls.

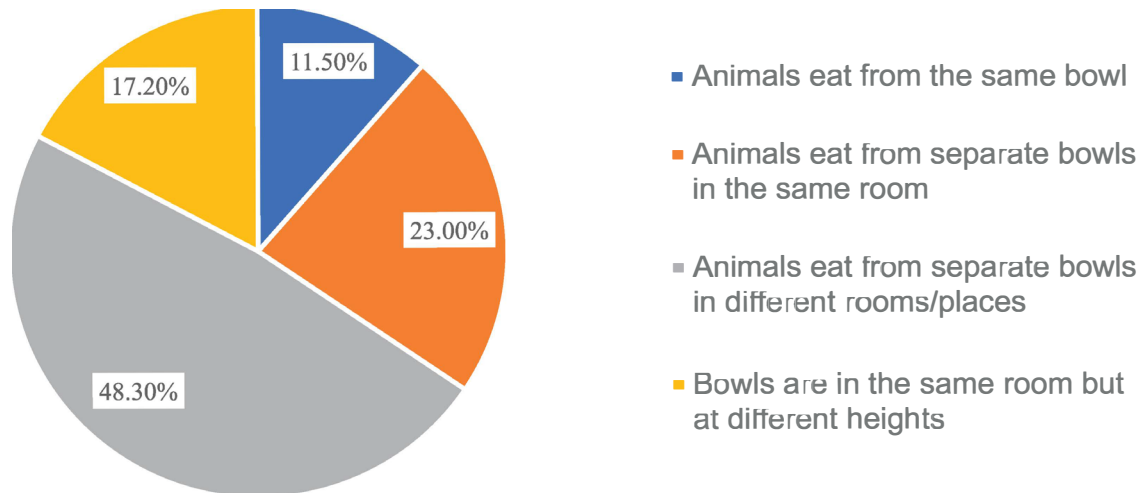


Fig. 8. Ways animals use their bowls

Some animals, due to their territorial instinct, despite coexisting and sharing a living space, may defend places that are particularly important to them. One such place is the animal's bed, in which it rests, reduces stress, and hides its toys or treats, and therefore it may chase away another animal that approaches it (Grabowska 2022). However, the survey results, presented in Fig. 9, do not confirm this theory, as only 13.80% of the animals defended their sleeping place, 19.50% only sporadically chased away the other animal, and 37.90% did not chase it away. The respondents indicated that 28.70% of animals had no bed or designated sleeping place.

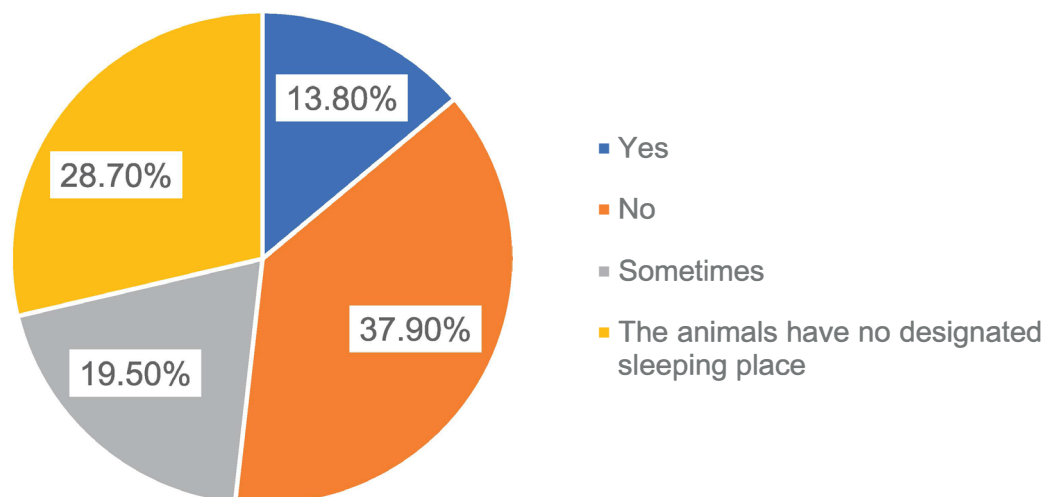


Fig. 9. Dogs and cats chasing the other animal away from their bed

In some cases, when a dog considers itself the dominant individual in the herd and above the cat in the hierarchy, it will chase a cat off the owner's bed, as the dog may consider it a special place where it cannot allow the cat to remain. The results presented in Fig. 10 show that

41.40% of dogs do not chase the cat away from the owner's bed, while only 6.90% do so and 11.50% do so sporadically. When a cat is lying together with the owner, 5.70% of dogs react and chase it away. In 5.70% of cases the animals in the home do not use the owner's bed.

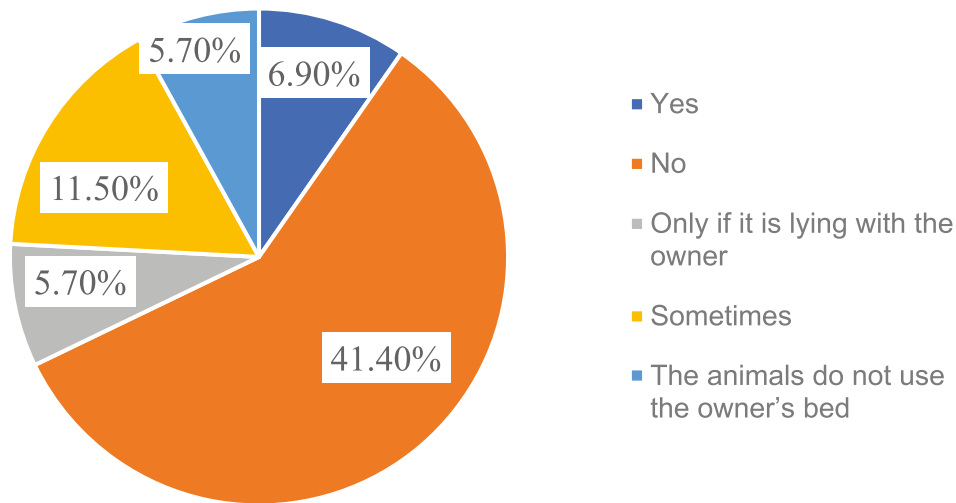


Fig. 10. Dogs chasing cats off the owner's bed

Figure 11 presents the behaviour of dogs when a cat is near a person. The results showed that when a cat approaches a person, 20.70% of dogs ignore the situation, 26.40% approach the person, seeking attention while ignoring the cat, 17.20% approach both of them, seeking interaction, 16.10% chase the cat away from the person and then expect the person's attention, 8.00% display neutral behaviour and only observe the situation from a distance, 5.70% bark and vocalize out of frustration, and 2.30% become excited by the situation.

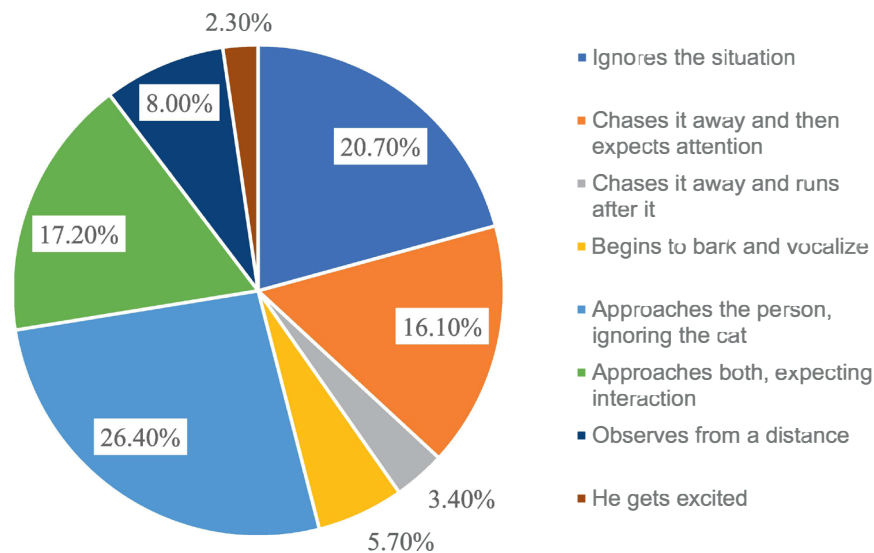


Fig. 11. Dogs' behaviour when a cat is near a person

The behaviour of cats when a dog is near a person is presented in Fig. 12. In 56.30% of cases the cat ignores the situation, 14.90% observe it from a distance, 10.30% approach the dog and person, expecting interaction, 6.90% approach the person, seeking attention while ignoring the dog, 5.70% attack the dog, 4.60% chase away the dog and then expect the person's attention, and only 1.10% of cats vocalize at the sight of a dog near a person.

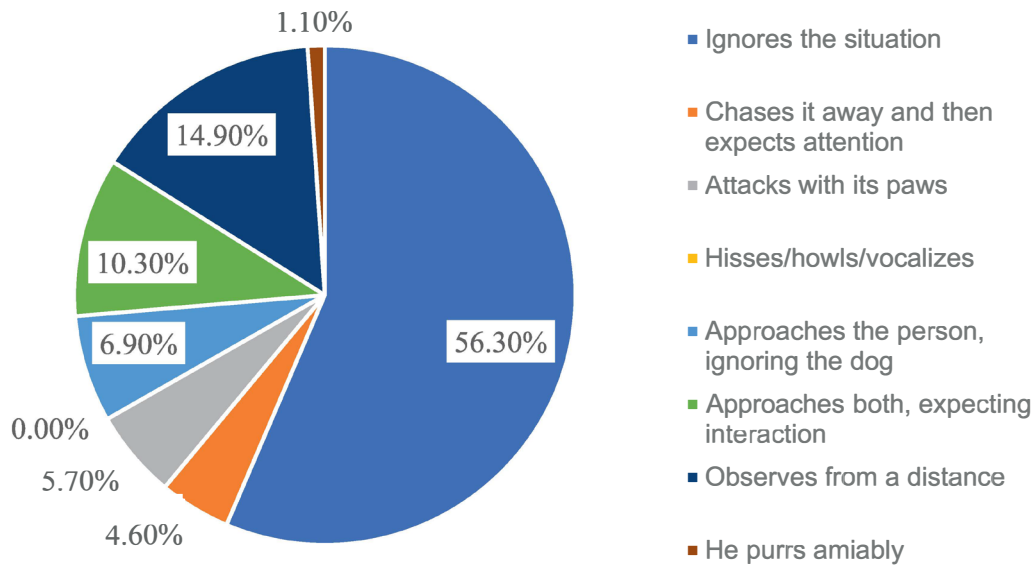


Fig. 12. Cats' behaviour when a dog is near a person

CONCLUSIONS

The results of the survey indicate that animals largely show friendly behaviour towards another animal with which they share a home, despite the fact that they display negative behaviour towards an unfamiliar animal. Therefore it can be concluded that these two species can live together in the same home, provided that certain criteria are met. The most important of these include an adequate length of time spent in the litter with the mother and siblings in order to acquire appropriate behaviour patterns. In addition, the animal must have a suitable personality and be appropriately reared and kept by a person who recognizes the animal's signals and knows how to respond to them.

Animals are able to interpret some nonverbal messages sent by another species. This process can be accelerated if the animal has contact with the other species from a very early age.

Interest in animal behaviour is currently growing, which may increase the frequency of adoption of dogs and cats, owing to knowledge of their needs and behaviour. The increasingly popular occupation of animal behaviourist, who is in many cases is able to help the owners of cats and dogs with social behaviour disorders, is also of great importance. Relationships between these two species can positively influence their psychological comfort, giving them a feeling of belonging to a herd so that they do not feel alone.

REFERENCES

- Biskup K.** 2018. Komunikacja wewnątrzgatunkowa psów, <https://www.animal-expert.pl/artukul/komunikacja-wewnatrzgatunkowa-psow>, access: 09.02.2022. [in Polish]
- Bradshaw J.** 2017. Zrozumieć psa. Jak być jego najlepszym przyjacielem. Czarna Owca, Warszawa. [in Polish]
- Bradshaw J.** 2020. Zrozumieć kota. Na tropie miauczącej zagadki. Warszawa, Czarna Owca. [in Polish]
- Cherek A.** 2016. Pies. Wychowanie i pielęgnacja. Warszawa, Samo Sedno. [in Polish]
- Grabowska M.** 2022. Co zrobić, kiedy pies broni zasobów?, <https://www.warsztat.edu.pl/co-zrobic-kiedy-pies-broni-zasobow>, access: 09.02.2022. [in Polish]
- Horoszewicz E., Kalinowska M., Niedziółka R.** 2017. Rozwój psychofizyczny psów oraz charakterystyka wybranych zaburzeń behawioralny [Psychophysical development of dogs and a characteristics of selected behavioural disorders]. *Wiad. Zootech.* 55, 4, 148–153. [in Polish]

- Kokocińska A., Kaleta T.** 2015. Behawioryzm i behavior – myśl filozoficzna i badania przyrodnicze [Behaviorism and behavior: philosophy and behavioral methods]. *Kosmos* 64, 2, 221–227. [in Polish]
- Kokocińska-Kusiak A., Maliszewski G.** 2017. Etologia w praktyce dogoterapeuty, czyli istota komunikacji człowiek–pies [Aetiology in the practice of the therapy dog handler, or the essence of human–dog communication]. *Prz. Hod.* 6, 5–8. [in Polish]
- Penar W., Magiera A., Klocek C.** 2019. Relacje psów z innymi gatunkami zwierząt domowych [Relations between dogs and other species of pet animals]. *Wiad. Zootech.* 57, 2, 26–35. [in Polish]
- Schötz S.** 2019. Sekretny język kotów. Białystok, Wydaw. Kobiectwo. [in Polish]
- Stanlik E.** 2020. Sygnały uspokajające – największy skarb, <https://weterynarianews.pl/sygnały-uspokajające-największy-skarb>, access: 01.02.2022. [in Polish]
- Tymiński W.** 2004. Koty. Encyklopedia hodowcy. Warszawa, Wydaw. Skarbnica. [in Polish]

ZASADY KOEGZYSTENCJI PSA I KOTA DZIELĄCYCH ŚRODOWISKO BYTOWANIA

Streszczenie. Powszechnie twierdzi się, że pies i kot są odwiecznymi wrogami, którzy nie potrafią się porozumiewać. Duża liczba gospodarstw domowych w Polsce oraz innych krajach nie utrzymuje tych dwóch gatunków razem w miejscu zamieszkania ze względu na obawę o przeciwstawność ich osobowości oraz zachowań. Celem pracy jest wykazanie, że pies i kot pomimo wielu różnic mogą ze sobą żyć i dzielić środowisko bytowania. W celu zbadania tej tezy stworzono ankietę społeczną, którą wypełniły osoby posiadające te dwa gatunki zwierząt. W ankiecie zawarte były pytania dotyczące charakterystyki zwierząt oraz zachowań wobec drugiego gatunku, z którym koegzystują. Odpowiedzi udzieliło łącznie 87 osób. Ankieta złożona była z pytań zamkniętych wielokrotnej lub jednorazowej odpowiedzi, w zależności od rodzaju pytania. Podzielona była na trzy sekcje: pytań o kocie, pytań o psie oraz pytań odnośnie do zachowań społecznych psa i kota. W celu odpowiedniego porównania wyników odpowiedzi w trzech pytaniach zostały pogrupowane na rodzaje zachowań. Z przeprowadzonego badania wynika, że zwierzęta uczestników ankiety w większej mierze były w przedziale wiekowym od 2 do 8 lat oraz przeważała rasa mieszana. Wyniki ankiety wskazują, że pies i kot w dużym stopniu wykazują przyjazne zachowania względem siebie. Można więc wnioskować, że te dwa gatunki mogą ze sobą żyć we wspólnym domostwie, lecz muszą być spełnione pewne kryteria, aby ta relacja miała szansę bytu. Najważniejszymi kryteriami są: odpowiednio długi okres w miocie z matką w celu nabrania odpowiednich wzorców zachowania oraz kontakt z drugim gatunkiem w bardzo wczesnym wieku.

Słowa kluczowe: pies, kot, koegzystencja, zachowania społeczne.