

# Dogs' aggressive behavior towards humans is often caused by fear

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A study encompassing some 9,000 dogs conducted at the University of Helsinki demonstrated that fearfulness, age, breed, the company of other members of the same species and the owner's previous experience of

dogs were associated with aggressive behavior towards humans. The findings can potentially provide tools for understanding and preventing aggressive behavior.

Aggressive behavior in dogs can include growling, barking, snapping and biting. These gestures are part of normal canine communication, and they also occur in non-aggressive situations, such as during play. However, aggressive behavior can be excessive, making the dog a health threat to both humans and other animals.

"Understanding the factors underlying aggressive behavior is important. In what kinds of circumstances does aggressive behavior occur and what is the dog's motive for such behavior? In normal family dogs, aggressive behavior is often unwanted, while some dogs with official duties are expected to have the capacity for aggressiveness. At the same time, aggressiveness can be caused by welfare issues, such as [chronic pain](#)," says doctoral researcher Salla Mikkola from the University of Helsinki.

The canine gene research group active at the University of Helsinki surveyed connections between aggressive behavior and several potential risk factors with the help of a dataset encompassing more than 9,000 dogs, a sample from a larger dataset from a behavioral survey dataset of nearly 14,000 dogs. The study investigated aggressiveness towards both dog owners and unfamiliar human beings. Dogs were classified as aggressive if they growled often and/or had attempted to snap at or bite a human at least occasionally in the situations described in the survey.

"Dogs' fearfulness had a strong link to aggressive behavior, with fearful dogs many times more likely to behave aggressively. Moreover, older dogs were more likely to behave aggressively than younger ones. One of the potential reasons behind this can be pain caused by a disease. Impairment of the senses can contribute to making it more difficult to notice people approaching, and dogs' responses to sudden situations can

be aggressive," Mikkola adds.

Small dogs are more likely to behave aggressively than mid-sized and large dogs, but their aggressive behavior is not necessarily considered as threatening as that of large dogs. Consequently, their behavior is not addressed. In addition, the study found that male dogs were more aggressive than females. However, sterilization had no effect on aggressive behavior.

The first dogs of dog owners were more likely to behave aggressively compared to dogs whose owners had previous experience of dogs. The study also indicated that dogs that spend time in the company of other dogs behave less aggressively than dogs that live without other dogs in the household. While this phenomenon has been observed in prior research, the causality remains unclear.

"In the case of [dogs](#) prone to aggressive behavior in the first instance, owners may not necessarily wish to take a risk of conflicts with another dog," Mikkola muses.

## **Significant differences in aggressive behavior between breeds**

Differences in the aggressiveness of various dog breeds can point to a genetic cause.

"In our dataset, the Long-Haired Collie, Poodle (Toy, Miniature and Medium) and Miniature Schnauzer were the most aggressive breeds. Previous studies have shown fearfulness in Long-Haired Collies, while the other two breeds have been found to express aggressive behavior towards unfamiliar people. As expected, the popular breeds of Labrador Retriever and Golden Retriever were at the other extreme. People who

are considering getting a dog should familiarize themselves with the background and needs of the [breed](#). As for breeders, they should also pay attention to the character of dam candidates, since both fearfulness and aggressive behavior are inherited," says Professor Hannes Lohi from the University of Helsinki.

**More information:** Salla Mikkola et al, Aggressive behaviour is affected by demographic, environmental and behavioural factors in purebred dogs, *Scientific Reports* (2021). [DOI: 10.1038/s41598-021-88793-5](#)

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