

Researchers issue 'call to action' for data on more diverse range of dog owners

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Virginia Tech's Audrey Ruple and Courtney Sexton, already deeply involved in data collection and analysis for dog health and connections to humans through the [Dog Aging Project](#), are imploring fellow scientists to cast the net even wider for data on the shared environments of humans and dogs in a perspective piece that [appears](#) this month in the journal *Science*.

"Human environments and the impacts of environmental factors can vary substantially, and this variation should be captured by future studies of dogs to more accurately assess exposure risks for different and vulnerable populations," Sexton and Ruple wrote.

"Although there are accumulating data to support the validity of recognizing and integrating dogs as sentinels of human health, the current lack of a system for capturing the capacities in which dogs are representative of the exposomal influences on a spectrum of human experiences is problematic.

"The time to begin reporting such data is now."

Ruple and Sexton, both of the Virginia-Maryland College of Veterinary Medicine, advocate standardized [data collection](#) on [dog owners](#) in studies of companion animal health, including "at minimum, owner-relevant demographics, such as age group, [racial identity](#), gender identity, geographic location, residential environment type (urban, rural, suburban), household composition (i.e., living with unrelated people, living with family members, living alone), income, and education level."

"It's a call to action for researchers in the field to ensure we're including a diverse range of humans in our studies, not just a diverse population of dogs," said Ruple, the Dorothy A. and Richard G. Metcalf Professor of

Veterinary Medical Informatics. "This is crucial for making sure that the benefits and hazards we uncover that are related to our shared environment truly benefit everyone."

"Exposome," a term coined only 19 years ago by molecular epidemiologist Christopher Wild, appears as the sixth word in the article for Science and is a concept returned to repeatedly by Sexton and Ruple.

"The exposome can be considered the totality of environmental factors that may influence an individual's quality of life, including those pertaining to both the physical and social environments, such as air quality, access to resources, water, diet, financial standing, companionship, etc.," said Sexton, a post-doctoral researcher in population health sciences at Virginia Tech.

"Dogs and people have substantial overlap when it comes to their exposomes, but dogs live much shorter lives. So in looking at factors that impact both species and seeing outcomes at end of life in dogs, we may be provided with clues as to which of these factors are the most significant," they wrote.

"Human health is inextricably linked to the health of the environment, as is the health of other animals with whom people share habitats and resources. In particular, [close relationships](#) with canine companions offer an opportunity to learn how the shared exposome contributes to quality of life for both people and dogs."

In the article, Sexton and Ruple argued that the link between humans and dogs goes beyond shared physical environments and genetic similarities to include intertwined socioeconomic settings.

"Basically, we're making a case that we need to pay more attention to the humans living alongside the dogs we study," said Ruple.

"Paying attention to how 'human-centric' factors, like dog owners' housing status, financial status, and education, affect dogs can open up new pathways of understanding multi-species approaches to diagnostics, care, and prevention of health issues that may not otherwise have an apparent cause in dogs," Sexton said.

In the article, Ruple and Sexton drew links between how dogs are treated and issues of community welfare and [social justice](#).

"Maltreatment of dogs correlates with access to care, resources, and social justice in human communities," Sexton and Ruple wrote. "For example, city, county, and even individual property policies that restrict certain dogs on the basis of breed and size are frequently used discriminatorily to limit access to housing for specific people of different races, backgrounds, or socioeconomic class.

"On the other end of the spectrum, dogs often function as a form of social capital for humans, such as when they facilitate conversation between neighbors and make strangers appear more approachable or even more visible, as is the case with many unhoused individuals. Dog ownership can thereby improve quality of life by helping people build community, which also brings support for the animal."

Sexton and Ruple reiterated the One Health concept in their work.

"Recent and emerging research reveals that companion animals are distinctly positioned to be sentinels of public health, social welfare, and the health of individuals," they wrote in *Science*. "Human health is inextricably linked to the health of the environment, as is the health of other animals with whom people share habitats and resources. In particular, close relationships with canine companions offer an opportunity to learn how the shared exposome contributes to quality of life for both people and dogs."

Sexton, who [delivered a TEDx talk about 30,000 years worth of humans and dogs evolving together in shared settings](#), and Ruple, who serves on the executive leadership of the Dog Aging Project, stressed that dogs are unique among companion animals in their ability to serve as sentinels for [human health](#) issues.

"Although in some situations other species may be more appropriate indicators for a given risk factor," they wrote, "dogs' particular form of synanthropy, or adaptation to and integration into the human environment, is unmatched."

More information: Courtney Sexton et al, Canine sentinels and our shared exposome, *Science* (2024). [DOI: 10.1126/science.adl0426](https://doi.org/10.1126/science.adl0426)

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