Understanding obesity among companion dogs: New measures of owner's beliefs and behaviour and associations with body condition scores

(WEBB ET AL., 2020)[1]

THIS RESEARCH AIMED TO IMPROVE OUR UNDERSTANDING OF HOW OWNERS' BELIEFS AND BEHAVIOUR ARE ASSOCIATED WITH DOG OBESITY.

Introduction

Obesity is a multifactorial condition that can be explained by intrinsic factors pertaining to the dog (e.g., genetics, neutered status, age, sex), but it can also be associated with external factors concerning the owners' feeding and exercise practices with respect to their companion animals.

This research aimed to improve our understanding of how owners' beliefs and behaviour are associated with dog obesity. To do this, new theoretical frameworks and previously reported measures to assess owner factors, were evaluated. Like previous research, the study used the Theory of Planned Behaviour, which points to the importance of attitudes, norms, and control.

However, the research also considered insights from 5 other theoretical frameworks. Protection Motivation Theory describes the motivation of the owners to protect their dogs from obesity, by considering their perception of the severity of the disease and their ability to cope with it. The Transtheoretical model identifies which stage of change the owner has reached (e.g., have they started to think about their dog's weight? Have they taken action?). Control theory suggests that regulation (e.g., of weight) requires 3 processes: setting up a goal, monitoring the current state in relation to that goal, and then taking action if needed. Lastly, the Health Action Process Approach and the Rubicon Model of Action Phases, help to understand when and how motivation is translated into action – specifically when there are appropriate cues to action and / or the person has made plans.

Study design

PHASE 1

At Phase 1, 47 dog owners were asked to self-assess the body condition score (BCS) of their dog using a 5-point scale. BCS was also coded by a trained professional through pictures provided by the owners, and additional assessment of body condition and weight were carried out in a vet clinic.

PHASE 2

During Phase 2, 3339 dog owners were recruited across 5 countries (France, Germany, UK, Russia and Italy) and asked to self-assess the BCS of their dog, applying the same Phase 1 methodology, with the objective to detect potential predictors of the BCS.

STATISTICAL ANALYSIS

The statistical analysis included a series of hierarchical multiple regressions to identify the factors within each domain (i.e., beliefs about overweight and obesity, dog-owner bond, feeding, and exercise) that were correlated with BCS scores over and above demographic factors (age of owner, age of dog, gender, and size of dog; along with neutered status). A final regression of BCS on factors that were significant predictors in the within-domain models was then conducted.

Results

PHASE 1

In Phase 1, the 3 measurements to evaluate dogs' BCS (owner's ratings, the average rating of five coders from the pictures that owners submitted, and ratings by the vets when the owners brought their dog to the clinic) were correlated.

The highest correlation was found between coding BCS from photographs and the vet's assessment in the clinic, suggesting that coding BCS from photographs is an appropriate way to assess BCS when the dog cannot be seen by a vet.

PHASE 2

Phase 2 also demonstrated that owners rated their dog's BCS lower (mean BCS=3.13) than the coders (mean BCS=3.54), and 33% of the owners rated their dogs' BCS as "normal" (BCS=3), while the coders rated as overweight (BCS=4 or 5); which confirms once again the owner misperception of canine body condition.

Results from the final regression model of (coder-rated) BCS on factors that were significant predictors of BCS in the Within-Domain Models are shown in Table 1.
The overall model explained 19% of the variance of BCS.

TABLE 1. Significant Predictors of BCS in the Within-Domain Models.

Predictor	Beta weight from final regression	Description
Threat vulnerability	0,20	Owners that believed that their dog easily puts on weight were more likely to have an overweight dog
Age of dog	0,14	Older dogs were more likely to be overweight
Weight status	- 0,12	Owners that thought that their dog was fit were less likely to have an overweight dog
Perceived costs	-0,20	Owners who associate dog ownership with more costs were less likely to have an overweight dog
Normative beliefs about feeding	0,10	Owners who think that others believe that they fed their dog too much were more likely to have an overweight dog
Social support from friends	- 0,07	Owners whose friends support them to exercise their dog were less likely to have an overweight dog
Stage of change: Precontemplation	- 0,06	Owners who think about their dogs' weight were more likely to have an overweight dog
Neutered status	0,05	Neutered dogs were more likely to be overweight

The Theoretical frameworks evaluated showed that owners of overweight dogs tended to believe that their dog was more vulnerable to the threat of obesity. Similarly, identifying owners 'stages of change' with respect to tackling obesity proved useful, in the sense that having an overweight dog likely prompted owners to think about taking action.

Final results indicated that, perceptions of the dog's vulnerability to the threat of obesity, perceived weight status, perceived costs associated with ownership, normative beliefs about feeding, social support from friends, and being in the precontemplation stage of change predicted BCS alongside demographic factors (e.g., dog's age, neutered status).

Conclusions

The findings of the study provide a method for assessing a wide range of factors that may be associated with obesity among companion dogs and point to potential targets for interventions designed to reduce and prevent obesity – notably, helping owners to take action (realizing that responsible dog ownership is costly) and supporting them in the change by providing social support (for exercising).

References

[1] Webb TL, du Plessis H, Christian H, et al. Understanding obesity among companion dogs: New measures of owner's beliefs and behaviour and associations with body condition scores. Preventive Veterinary Medicine. 2020 Jul;180:105029. DOI: 10.1016/j.prevetmed.2020.105029.