

Veterinary professionals' weight-related communication when discussing an overweight or obese pet with a client

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OBJECTIVE

Pet weight may be difficult for veterinary professionals to address with clients, particularly when pets are overweight or obese. The objective of this study was to characterize the communication processes and content of weight-related conversations occurring between veterinary professionals and clients.

SAMPLE

Audio-video recordings of 917 veterinarian-client-patient interactions involving a random sample of 60 veterinarians and a convenience sample of clients.

PROCEDURES

Companion animal veterinarians in southern Ontario, Canada, were randomly recruited, and interactions with their clients were audio-video recorded. Interactions were reviewed for mentions of weight, then further analyzed by means of a researcher-generated coding framework to provide a comprehensive assessment of communication specific to weight-related interactions.

RESULTS

463 of 917 (50.5%) veterinary-client-patient interactions contained an exchange involving the mention of a single patient's (dog or cat) weight and were included in final analysis. Of the 463 interactions, 150 (32.4%) involved a discussion of obesity for a single patient. Of these, 43.3% (65/150) included a weight management recommendation from the veterinary team, and 28% (42/150) provided clients with a reason for pursuing weight management.

CLINICAL RELEVANCE

Findings illustrate opportunities to optimize obesity communication to improve the health and wellbeing of veterinary patients.

Assessing weight and nutrition during veterinary appointments are recommended best practices,¹ and the ability to clearly communicate weight- and nutrition-related information to clients is important for making recommendations and engaging clients as partners in their pets' healthcare. Because veterinarian-client communication has important implications for a variety of veterinary healthcare outcomes,²⁻⁵ assessing veterinarian-client communication around pet weight may offer important understanding to further address increasing concerns about the growing prevalence of pet obesity.

Regular monitoring of body weight throughout a pet's lifetime can help maintain a healthy weight and reduce the risk of obesity-associated diseases while improving quality of life.^{6,7} Despite the importance of discussing pet weight with clients, weight conversations, particularly those related to obesity, may be difficult or uncomfortable for practitioners to broach.^{8,9} Various strategies for engaging clients in weight management have been suggested,^{8,10} yet the cur-

rent state of communication in day-to-day veterinary practice between veterinary professionals and clients in relation to pet weight and obesity is unclear.

The outcome of weight management for pets is largely dependent on owners' active engagement, and the success of these efforts can potentially be improved through the use of more targeted or personalized communication techniques. Prior to exploring the application of specific techniques to such conversations, it is imperative to understand the current state of weight-related communication in practice. Previous research has investigated the frequency of body weight being recorded^{11,12} and the ways nutritional histories are gathered.¹³ An initial exploration of veterinarian-client communication about feline obesity found limited in-depth nutritional history taking and that clients were rarely provided with clear management recommendations.¹⁴ Establishing a more comprehensive baseline of the current state of weight-related conversations in practice provides a valuable starting point for informing appropriate continuing

education programs and veterinary school curricula for improving weight-specific communication.

The objective of the study reported here was to characterize the communication processes and content of weight-related conversations occurring between companion animal veterinarians and their clients, with a specific focus on conversations relating to overweight or obese pets. A secondary objective was to assess associations between veterinarian, client, and appointment factors and the occurrence of an obesity-related conversation.

Materials and Methods

The study protocol was approved by the University of Guelph Research Ethics Board (REB#17-08-009).

Participant recruitment

Participant recruitment has been previously described in full.^{15,16} Veterinarians working at practices within a 150-km radius of the Ontario Veterinary College in Guelph, Ontario, were considered for inclusion in the study. A randomized list of veterinarians practicing in this area was developed, and individuals on the list were contacted until 60 veterinarians consented to participate. All participating veterinarians were English speaking, at least 18 years old, and practiced companion animal medicine at least 1 day per week at a primary care practice. A research team member spent up to 3 days with each participating veterinarian with the goal of recruiting 20 client participants per veterinarian. Written informed consent was obtained from the participating veterinarian, clinic owner, and any veterinary support staff (VSS) who might participate in appointments prior to data collection. An incentive of \$100 CAD and an aggregate summary of the participating veterinarian's client satisfaction responses was offered.

Convenience sampling was used to recruit clients in the clinic lobby for each participating veterinarian. Clients were approached by a research team member to describe the study as research related to veterinarian communication, solicit participation, and obtain written informed consent. All participating clients had to be English speaking and at least 18 years old. Participants were excluded from video recording if all accompanying individuals did not provide consent, the appointment was a planned euthanasia or the veterinarian thought the appointment could become a euthanasia, or there was an accompanying minor (< 18 years of age) present.

Data collection

Within the first 24 hours of study participation, participating veterinarians completed an initial questionnaire collecting demographic information and the participant's responses to several mental health indices included as part of a separate study.¹⁵ After each appointment, veterinarians completed a post-appointment questionnaire to record the pets' age (pediatric, adult, or geriatric) and body condition score (BCS) on a 9-point scale. An exit questionnaire completed at the end of data collection used a visual

analog scale (0 = definitely not; 100 = definitely yes) to measure veterinarians' responses to the questions "Do you think being videotaped interfered with your clinical performance?" and "Do you think you could be yourself in front of the camera?"

Clients completed a questionnaire with demographic questions either before or after the appointment. Appointment-level characteristics collected included species of the pet or pets in the appointment (cat, dog, or other), the number of pets in the appointment, and the reason the visit was booked (routine wellness or annual exam, new health problem, or recheck exam).

Veterinarian-client interactions were audio-video recorded as part of the overall study with a camera (Hero5 edition; GoPro Inc) mounted in an upper corner of the exam room.

Weight-related interaction coding

Initially, the research team generated a dichotomous coding framework to catalog the overall content of each veterinarian-client-patient interaction whereby communication-related content items, including references to the patient's weight and body condition, were coded as present or not present. Prior to coding, the recorded appointments were randomized, and all recorded appointments were viewed and cataloged by a team of research assistants. Twenty percent (184/917) of interactions were independently cataloged by a second coder to assess percentage agreement between the independent coders. Agreement between coders for identifying mentions of pet weight in the coding framework was 92.4% for mentions by a VSS and 85.3% for mentions by a veterinarian.

To characterize veterinarian-client communication specific to pet weight during the recorded interactions, all audio-video recorded interactions that were classified as having a mention of pet weight with either a VSS or veterinarian were selected for more detailed coding. A second coding framework specific to weight-related content and communication process was developed by the research team to assess the content and process of communication related to weight. The principal author (KAS) reviewed all interactions that were classified as having a mention of weight for a cat or dog. Weight conversations during the interactions were classified as being due to the pet being overweight or obese (based on a mention of the pet being overweight or needing to lose weight), preventive (based on the conversation being framed around the pet currently being at a healthy weight or needing to maintain the current weight), or related to illness or medication (eg, monitoring weight for a pet with chronic kidney disease). Interactions were also coded for the presence or absence of 28 items related to gathering a nutritional history, BCS, and other household factors that may relate to a pet's weight. Interactions that were classified as being related to the pet being overweight or obese were further coded for the presence or absence of an additional 28 items related to weight management recommendations and reasons to pursue weight management that were provided to clients. The weight-specific interactions were also categorized as being initiated by the VSS, veterinarian, or client. Interactions were dichoto-

mously coded (yes vs no) for the following in addition to the previous items: the use of humor by the VSS, veterinarian, or client; whether an analogy to human health or weight was used by a veterinary team member; and whether there was a mention of body weight including a numeric value. The use of humor was considered any joke made about the pet's weight, whether received positively by the other party (ie, with a laugh or return joke) or not. The total time spent discussing weight and nutrition with the VSS or veterinarian was recorded for each interaction, with timing begun at the first utterance of a statement related to weight or nutrition and ended at the end of the last related utterance. It became evident during video analysis that weight- and nutrition-related content was often not discussed in a single segment of the interaction; therefore, the number of discrete weight- and nutrition-related segments was also recorded, and time was totaled for all segments. A second coder independently reviewed 20% (184/615) of the weight-related interactions to assess percentage agreement between coders.

It became evident during video analysis that differentiating between conversations related to each pet in multiple-pet appointments was often challenging; therefore, 64 multiple-pet appointments were excluded. Finally, 2 videos with no animal present were excluded.

Statistical analysis

Descriptive statistics were calculated for the coded content of the weight-related interactions, client and veterinarian demographics, and appointment characteristics. Frequencies were calculated for categorical variables and median, mean, SD, and range were calculated for continuous variables. Veterinarian years in practice was log transformed to create a normally distributed variable prior to modeling. The continuous variables number of years the client had known the veterinarian and the practice size of the veterinarian were categorized prior to modeling. Number of years the client had known the veterinarian was categorized into categories of 5 years, and practice size was categorized into categories of 1 to 4 veterinarians and ≥ 5 veterinarians. Obesity conversations that occurred with only the VSS and multiple-pet appointments were excluded from the model.

Univariable associations with the binary outcome being the presence or absence of an obesity-related conversation were assessed for each independent client variable including gender (male or female), age (years), education (less than high school, high school diploma or equivalent, some college or university, college diploma, bachelor's degree, graduate degree, or professional degree), income (< \$20,000, \$20,000 to \$34,999, \$35,000 to \$49,999, \$50,000 to \$74,999, \$75,000 to \$99,999, \$100,000 to \$149,999, or > \$150,000), frequency of using this veterinarian (regularly, sometimes, or first time), and years client had known the veterinarian. Univariable associations were also assessed for each independent veterinarian variable, including gender (male or female), age (years), years in practice, practice size (number of veterinarians), role at practice (owner, associate, or other), hours worked per week (< 20 hours, 20 to 30 hours, 31 to 40

hours, or > 40 hours), practice location (rural, rural small town, or urban), and for each appointment-related variable, including species (cat or dog), appointment type (routine wellness or annual exam, problem, follow-up or recheck), spay-neuter status (yes or no), sex of pet (male or female), age of pet (pediatric, adult, or geriatric), and pet BCS (scored on a 9-point scale). A mixed logistic regression was used with veterinarian treated as a random effect. A likelihood ratio test was used to assess the significance of the mixed logistic model in comparison to a logistic model without the random effect. All variables with a *P* value < 0.20 in the univariable analysis were entered into a full mixed logistic model, and backward selection was used to identify the final main effects model. All plausible 2-way interactions were then tested. Missing data were handled via listwise deletion. The Akaike information criterion and a graphical assessment of best linear unbiased predictions were used to assess final model fit. Outliers were assessed by removing them from the model one at a time and reevaluating model fit.

All statistical analyses were performed with standard software (Stata version 16.1; StataCorp LLC). Values of *P* < 0.05 were considered significant.

Results

Veterinarian participants

A total of 472 veterinarians were randomly selected and invited to participate in the study. Of these, 149 did not meet inclusion criteria, 5 had not responded by the end of the recruitment period, and 61 agreed to participate in the study (response rate, 19.2% [61/318]). As determined a priori, data were collected for 60 veterinarians working at 55 different practices (**Table 1**). Most veterinarians (57/60 [95%]) practiced only companion animal medicine, and the remainder (3/60 [5%]) practiced mixed animal medicine with at least 50% of their time spent practicing companion animal medicine. Mean \pm SD years in practice (calculated from the year of graduation) was 19.5 \pm 10.34 years (median, 21.0; range, 2 to 39 years). Those veterinarians who declined to participate most often cited lack of interest, feeling too busy, and feeling self-conscious as reasons for not participating.

On the exit survey, veterinarians generally indicated that they could be themselves while being filmed (scored on a scale from 0 to 100), with a median score of 93 (mean score, 81.6; SD, 29.3). They also reported that filming did not interfere with their clinical performance (scored on a scale from 0 to 100) with a median score of 6.5 (mean score, 16.3; SD, 22.9), indicating low levels of perceived interference.

Client participants

A total of 1,183 clients were asked to participate in the study. Of these, 135 declined to be audio-video recorded and an additional 119 did not meet the study's inclusion criteria. The total number of consenting and eligible clients who participated in the audio-video recording was 929 (response rate, 87.2% [929/1,065]). After loss of recordings because of technical malfunc-

Table 1—Demographics of Ontario companion animal veterinarians (n = 60) participating in a study on communication processes and content of weight-related conversations occurring between veterinary professionals and their clients.

Characteristic	Category	No. (%)
Gender	Male	21 (35.0)
	Female	39 (35.0)
Role at practice	Owner	36 (60.0)
Hours worked per week	Associate or locum	24 (40.0)
	< 30	12 (20.0)
	30–40	25 (41.7)
	> 40 h	23 (38.3)
Veterinary college attended	AVMA accredited	47 (78.3)
	Not AVMA accredited	13 (21.7)
Communications training ^a	Yes	37 (61.6)
	No	23 (38.4)

^aSelf-described communications training (eg, during veterinary school or through workshops)

tions, 917 audio-video recorded appointments were available for the current study. After excluding repeat clients, appointments with multiple pets, and VSS-only weight interactions, modeling included observations from 829 single-pet veterinarian-client interactions (**Table 2**). Mean \pm SD age of the 728 clients included in these interactions who reported their age was 46.3 \pm 14.89 years (median, 47 years; range, 19 to 82 years). Mean \pm SD number of years the 720 clients who reported this information had known the veterinarian was 6.4 \pm 6.86 years (median, 4 years; range, 0 to 50 years).

Appointments were wellness visits (389/829 [46.9%]), problem visits (326 [39.3%]), and recheck visits (114 [13.8]). The patient was a dog in most appointments (650/829 [78.4%]), and a cat in the remaining appointments (179 [21.6%]). The pet's age was not indicated for 26 appointments, and of the 803 appointments for which the pet's age was known, most patients were adults (426/803 [53.1%]); 14.8% (119/803) of pa-

tients were pediatric and 32.1% (258/803) were geriatric. Mean \pm SD BCS was 5.5 \pm 1.19. Mean \pm SD time spent with the veterinarian was 15.8 \pm 8.82 minutes (median, 14.6 minutes; range, 0.6 to 59.2 minutes).

Content of weight-related interactions

A mention of weight for a cat or dog was identified in 615 of the 917 (67%) videos during the initial content cataloguing. On further review, 28 videos were deemed not to include a relevant mention of weight (eg, weight was mentioned as an adverse effect of a medication), and 60 included a mention of weight but no substantial discussion that could be coded according to the coding framework (eg, a VSS read a weight from a scale and there was no utterance from the client). In total, 463 video-recorded veterinarian-client-patient interactions were included in the analysis of weight-related conversations. One or more weight-related interactions was captured for all 60 participating veterinarians (median, 8; mean, 7.7;

Table 2—Demographics of participating clients for 829 audio-video recorded, single-pet, veterinarian-client interactions with the 60 participating veterinarians.

Characteristic	Category	No. (%)
Gender (n = 744)	Male	197 (26.5)
	Female	547 (73.5)
Education (n = 739)	Less than high school	16 (2.2)
	High school diploma or equivalent	96 (13.0)
	Some college or university	120 (16.2)
	College diploma	216 (29.2)
	Bachelor's degree	160 (21.6)
	Graduate degree	85 (11.5)
	Professional degree	46 (6.2)
Income (n = 655)	< \$20,000	24 (3.7)
	\$20,000–\$34,999	46 (7.0)
	\$35,000–\$49,999	72 (11.0)
	\$50,000–\$74,999	109 (16.6)
	\$75,000–\$99,999	105 (16.0)
	\$100,000–\$149,999	143 (21.8)
	> \$150,000	156 (23.8)
Frequency of using this veterinarian (n = 750)	Regularly	560 (74.7)
	Sometimes	97 (12.9)
	First time	93 (12.4)

All appointments had only 1 pet present. Values for individual characteristics do not total 829 because of nonresponse.

range, 1 to 14). Agreement between independent coders for individual items in the weight interaction coding framework ranged from 74.5% to 100% (mean agreement, 93.4%). The Brennan-Prediger coefficient was 0.868, and the Gwet AC₁ coefficient was 0.929. The primary coder's scoring was used for all analyses and is reported.

Most weight-related interactions took place during wellness visits (258/463 [55.7%]) and were preventive or occurring when the animal was indicated to be at a healthy weight or BCS (197/463 [42.5%]), followed by obesity-related interactions (150/463 [32.4%]) and mentions of weight related to a pet's illness or medication (116/463 [25.1%]). Within VSS-client interactions, most weight-related conversations were initiated by the VSS (55/95 [57.9%]), with clients initiating the remaining 40 (42.1%) conversations. Veterinarians initiated 318 of the 439 (72.4%) weight-related conversations when they were with the client, and clients initiated the remaining 121 (27.6%) with a veterinarian. Overall, veterinarian-client discussions about weight were short, with a median discussion time of 39 seconds (mean, 1 minute 10 seconds; range, 4 seconds to 17 minutes 6 seconds). During wellness appointments specifically, veterinarians spent a median of 46 seconds discussing weight (mean, 1 minute 20 seconds; range, 4 seconds to 17 minutes 6 seconds). Veterinarians often raised weight discussions at several points throughout appointments (mean, 1.9 discrete mentions; SD, 1.15; range, 1 to 8) that included a weight conversation.

An analogy to human health or weight was used in 13 of the 463 (2.8%) weight-related interactions. Veterinarians used humor when discussing weight in 67 of their 439 (15.3%) interactions, VSS used humor in 4 of their 95 (4.2%) interactions, and clients used humor in 77 of 463 (16.6%) interactions when discussing their pet's weight. Clients were provided a numeric value in pounds or kilograms for their pet's body weight in 286 of the 463 (61.8%) interactions.

Obesity-related content

Of the 150 obesity-related interactions, 33 (22.0%) took place between a VSS and a client, and 28 of those 33 (84.8%) included a veterinarian-client obesity conversation during the same appointment. Five of the 150 obesity-related interactions (3.3%) occurred only between the client and a VSS. Veterinarian-client obesity conversations occurred during 145 of the 150 (96.7%) obesity-related interactions.

Obesity-related discussions between veterinarians and clients lasted a median of 1 minute 4 seconds (mean, 1 minute 45 seconds; range, 4 seconds to 17 minutes 6 seconds). The veterinarian or VSS provided the client with a clear recommendation or guidance for weight management in 65 of the 150 (43.3%) appointments with an obesity conversation. An explanation of the importance of pursuing weight management, how the pet may benefit from weight management, or a reason for the pet to lose weight was mentioned by a veterinarian or VSS in 42 of the 150 (28.0%) obesity-related interactions (Table 3).

Table 3—Summary of weight management recommendations and reasons to lose weight mentioned to clients during obesity-related weight interactions with veterinarians (n = 145 interactions) and veterinary support staff (VSS; 33 interactions).

Variable	No. of VSS-client interactions	No. of veterinarian-client interactions
Weight management recommendations		
Reduce main diet	3	46
Change diet	1	13
Therapeutic diet	0	8
Reduce treats	0	17
Change treats	0	8
Reduce table scraps and human food	0	15
Increase physical activity	0	16
Begin to measure food	0	13
Weigh food	0	4
Meal feed	1	1
Feed pets separately	0	1
Other	2	6
Reasons to lose weight		
Mobility or arthritis	0	30
Diabetes	1	10
Hip or elbow dysplasia	0	2
Thyroid imbalance	0	0
Hepatic lipidosis	0	2
Pancreatitis	0	1
Urinary tract disease	0	1
Cardiac function	0	6
Cancer	0	0
Anesthesia risk	0	2
Heat tolerance	0	1
Increased energy or activity	0	3
Grooming ability	0	2
Increased lifespan	0	6
Quality of life	0	1
Other	0	6

Nutrition-related content

Most weight-related interactions included some component of a nutritional history mentioned by the veterinarian, VSS, or client (381/463 [82.3%]). No components of a nutritional history were gathered or discussed by anyone present in the appointment in the remainder of interactions. When a nutritional history was initiated by a VSS, one or more closed-ended questions was typically used to gather information (118/120 [98.3%]), with open-ended or a mix of open- and closed-ended questions used rarely (2/120 [1.6%]). Similarly, veterinarians generally used one or more closed-ended questions (271/278 [97.5%]) and only occasionally used open-ended or a mix of open- and closed-ended questions (7/278 [2.5%]) to gather information about a patient's nutri-

tional history. A variety of components of nutritional history was solicited (**Table 4**). Additional information discussed during weight-related interactions included mentions related to BCS and miscellaneous factors related to pet weight (**Table 5**). Veterinarians spent a median of 55 seconds (mean, 1 minute 32 seconds; range, 4 seconds to 17 minutes 49 seconds) eliciting nutritional histories. Nutrition was also discussed by veterinarians at multiple points (mean, 2.1; SD, 1.21; range, 1 to 10) throughout an interaction across all appointment types.

Factors associated with obesity conversations

The final mixed logistic regression model (**Table 6**) included BCS (odds of an obesity-related conversation

Table 4—Initiation^a of nutrition history items during 463 single-pet appointments with a weight-related interaction.

Nutritional history items	No. initiated by VSS	No. initiated by veterinarian	No. initiated by client
Main diet type	86	167	69
Main diet quantity	27	34	77
Treat provision or kinds of treats	24	42	150
Table scraps or human food provision	5	21	106
Supplements	28	18	23
Meal versus free feeding	9	16	24
Begging behavior	0	2	14
Overall appetite	70	108	99
Type or amount of physical activity	7	24	105
Other	6	12	28

^aRecorded as the first mention of the item during the appointment.

Table 5—Frequency of mentions of items related to body condition score (BCS) and other factors related to pet weight by veterinarians and VSS during obesity-related conversations (n = 150), conversations about preventing obesity (197), and conversations about weight related to a pet's illness or medication (116) with clients.

Item	Obesity-related conversation		Preventive conversation		Illness or medication conversation	
	VSS	Veterinarian	VSS	Veterinarian	VSS	Veterinarian
BCS-related items ^a						
BCS stated as a number value	0	6	0	6	0	0
Hands-on assessment of BCS with verbal indication	2	53	1	83	0	14
BCS assessed visually with verbal indication	2	15	3	28	1	6
BCS estimated via morphometric measurements	0	0	0	0	0	0
BCS verbally explained to client	2	38	1	47	0	4
Client shown BCS chart	1	2	0	2	0	0
Client asked what they think BCS of pet is	0	0	0	0	0	0
Additional items						
Offer to perform calorie calculation	3	13	0	4	0	1
Discuss feeding guidelines on commercial diet packaging	1	9	3	8	0	1
Importance of monitoring weight trends	0	3	0	1	0	0
Impact of spay or neuter on weight	0	1	0	9	1	0
Recommend follow-up weight checks	0	17	0	5	0	1
Mention of children in the household	0	5	0	2	0	1
Asked who primarily feeds the pet	0	1	0	0	0	0
Asked where food is bought	0	6	4	12	1	5
Asked how food is stored	0	0	0	1	0	0
Asked about other pets in the household	3	7	0	8	0	6
Other	2	12	0	2	0	0

Data represent number of times an item was mentioned.

^aA total of 187 of the 463 (40.4%) interactions contained a mention of BCS.

Table 6—Mixed logistic regression model assessing associations between veterinarian-, client-, and appointment-related and the presence or absence of an obesity conversation.

Effect	Category	OR (95% CI)	SE	P value
Fixed effect				
Appointment type	Wellness	Referent		
	Problem	0.32 (0.19–0.55)	0.087	< 0.001
	Recheck	0.22 (0.10–0.49)	0.095	< 0.001
Age of pet	Adult	Referent		
	Pediatric	0.26 (0.08–0.79)	0.148	0.018
	Geriatric	0.82 (0.49–1.36)	0.213	0.446
BCS	NA	3.94 (3.03–5.12)	0.526	< 0.001
Random effect				
Veterinarian ^a	NA	0.47 (0.18–1.26)	0.236	0.106

^aIntraclass correlation coefficient = 6.4%.
NA = Not applicable.

increase with increasing BCS), appointment type (odds of an obesity-related conversation were lower during problem and recheck appointments relative to wellness appointments), and age of the pet (odds of an obesity-related conversation were lower during pediatric and geriatric pet appointments relative to adult pet appointments). No significant interactions were observed.

Discussion

Findings of the present study reveal that in general, the processes associated with weight-related conversations in companion animal practice are brief, with limited information elicited from or communicated to clients about their pets' weight. Specifically, nutritional histories were found to be limited and frequently collected entirely through closed-ended questions. Specific to obesity-related interactions identified in the present study, many did not include any information for the client about steps they could take to manage their pet's weight or a reason for why weight management was important for their pet's health and wellbeing. Taken together, these results indicate that there are important opportunities for veterinary professionals to continue expanding their nutrition- and weight-related communication, particularly when overweight or obese pets are presented to a veterinary practice.

Although most of the weight-related interactions observed in the present study occurred when the veterinarian recorded a healthy BCS for the pet, the overall short duration of these conversations, including during wellness appointments, suggests that there may be opportunities to have more in-depth prevention-related conversations with clients about their pets' weight. As has been previously suggested, it is not unreasonable to assume that veterinarians may not feel that spending time discussing the weight of a pet with an ideal BCS is a priority.¹⁷ However, a proactive approach from veterinarians that emphasizes maintaining a healthy weight from early on in a pet's life can reduce the risk of multiple obesity-associated chronic diseases,⁶ and there is evidence that maintaining optimal body composi-

tion is associated with increased longevity in dogs.¹⁸ Promoting owner understanding of the benefits of a healthy pet weight while the pet is still at a healthy weight may help companion animals live longer and reduce the financial costs to an owner over the lifetime of their pet.

Additionally, monitoring trends in pet health parameters has been promoted as an important aspect of preventive veterinary care,¹⁹ yet recent research with the same study population has indicated that participating veterinarians' use of trends to communicate with clients is very limited.²⁰ Increased use of trends within veterinarian-client interactions may help identify the need for early intervention to maintain a healthy pet weight. Pet obesity advocates highlight that prevention of pet obesity is easier than trying to achieve weight loss followed by weight maintenance over the long-term.²¹ Increased monitoring and use of weight trends would normalize the discussion of weight during veterinary care appointments.

The brevity of most weight conversations observed in this study may reflect time constraints often experienced in veterinary practice^{22,23} and supports one reason identified for why veterinarians may not address pet obesity in a given appointment.²⁴ An approximate average of 1 minute spent discussing pet weight during an appointment is a very limited window for information gathering or client education, which likely poses a challenge to veterinary professionals' gaining useful insights into a client's perceptions of their pet's weight and suggests very little cumulative time may be spent discussing weight over a pet's lifetime. Future research should further explore time constraints as a limitation for veterinary professionals' weight-related communication, including the development of communication tools or strategies that may assist veterinary professionals in efficiently and effectively engaging pet owners in weight-related conversations.

Eighty-two of the 463 (17.7%) weight-related conversations reviewed for this study contained no nutritional history gathering, despite a nutritional assessment being promoted as the fifth vital assessment that should be conducted as part of every

examination of a cat or dog.¹ Comprehensive guidelines exist for the information that should be collected as part of a nutritional assessment,^{1,25,26} yet many of these items were infrequently explored by veterinary staff during the interactions examined for the present study. Additionally, the way in which the nutritional history is gathered is a significant factor in the information the veterinary team receives from the client. Veterinarians have previously been found to employ primarily close-ended questions when gathering information,²⁷ including information related to nutritional history,¹³ although clients provide significantly more dietary information when open-ended questions are used.²⁸ The very limited use of open-ended inquiry that was observed in this study suggests a clear opportunity for veterinary professionals to more frequently employ this method of inquiry when gathering a nutritional history. If veterinary professionals do not have a comprehensive understanding of a pet's current nutrition, including environment- and human-related factors, there is a risk that recommendations may not be appropriate for the pet or the owner's lifestyle. Obtaining a complete nutritional history also allows for understanding of owner preferences, including "non-negotiables" that may need to be incorporated into any future nutrition support plans.²⁹ Further, underreporting of diet items apart from a primary commercial diet (eg, dry or canned), such as alternative diets (eg, homemade diets), treats, human foods, and supplements, poses concerns not only for unidentified obesity risk factors, but also nutritional imbalances (ie, deficiencies or excesses) that can have substantial impacts on animal health. Awareness of alternative food provision may be especially important, as the practice of feeding alternative diets alongside dry and canned diets appears to be growing in popularity.³⁰ Understanding these important aspects of the pet's nutrition and using this understanding to provide options to clients may help veterinary professionals increase client adherence. Promoting veterinary team members' engagement with pet owners about nutrition and supporting veterinary team members with the communication skills to build a foundation for this engagement should be a priority for the profession.

When treating obesity, there are opportunities for the entire veterinary team to be involved in engaging and counseling clients throughout the weight-management process. It has been recognized that consistent integration of nutritional and weight-related counseling into every visit is essential to successful, sustainable weight management,⁸ and it has been suggested that establishing clinic-wide best practices for communication between veterinary staff and clients regarding weight and nutrition has value for a veterinary practice.⁸ In the present study, VSS engagement with clients about weight and nutrition was low. Possibly, engagement may have been underestimated if VSS avoided interacting with clients because of the filming associated with the research project. Yet the finding suggests that there may be missed opportunities for VSS to have greater engagement with clients in relation to weight and nutrition.

A surprising finding from the present study was the number of missed opportunities identified for a clear weight-management recommendation to be provided to clients who were informed their pet was overweight during the video-recorded interactions, as well as the low incidence of discussions around the health impacts of obesity and the importance of maintaining a healthy body weight for the patients involved in the interaction. In human medicine, physicians have been found to lack confidence in patients' ability to change behavior to address their weight,³¹ and similar veterinarian concerns around client adherence and readiness to address pet obesity have previously been cited as a potential barrier to engaging in obesity-related conversations.²⁴ It is possible that veterinary professionals in this study did not provide pet weight management recommendations owing to similar concerns. Given the cross-sectional nature of this study, it is not possible to know whether a particular recorded interaction was the first mention of the pet's overweight status or one in an ongoing series between the veterinarian and client. In the latter case, it is possible the veterinarian may not feel compelled to spend substantial time on weight as a recurring topic at every visit. In any circumstance, not providing this information to a pet owner is a concern and could be considered a failure to meet a professional obligation.³² Even if a client is not yet ready to address the issue, bringing attention to the weight concern is necessary to establish the topic as one of importance and to assess a client's current thoughts and readiness for change in relation to their pet's weight, since these can change over time.

When providing weight-management recommendations, it is important for veterinary professionals to effectively communicate the value of weight loss and any nutritional changes being proposed. Very limited explanations of the benefits of weight management for the pet or owner were observed in the present study. Pet owners are more likely to agree with a veterinarian's recommendation if the value of the recommendation as it relates to the pet's future health is explained.^{33,34} Further, previous research has found the odds of client adherence to a veterinarian's recommendation when the client receives a clear recommendation are 7 times the odd when the client receives an ambiguous recommendation.⁵ This underscores the importance of both a clear weight management or nutrition recommendation and effectively communicating the reasons behind that recommendation.

Several limitations of this study should be acknowledged. There is the potential for selection bias toward veterinarians who had greater confidence in their communication abilities, compared with those who declined to participate in the audio-video recording. The Hawthorne effect was also considered as a potential bias; however, repeated filming over several days may have allowed time for veterinarians to acclimate, and veterinarians self-reported limited perceived interference of the filming on their clinical performance and ability to be themselves. It is also

possible the frequency of weight conversations happening in practice was underestimated, as any conversations that occurred outside of the exam room (eg, next to a scale outside the room or in the clinic lobby) would not have been captured. Finally, the study only included English-speaking participants from a specific region of Ontario, Canada, and findings may not be representative of weight-related communication between veterinarians and clients speaking other languages or from other regions.

The present study helps to establish a baseline for the current nature of veterinary-client interactions relating to pet weight and nutrition in companion animal practice, with a specific focus on conversations involving an overweight or obese pet. Findings suggest there are several opportunities to improve and expand on these conversations. Increased time spent gathering a comprehensive nutritional history and discussing pet weight may benefit both preventive and obesity-related weight conversations for cats and dogs. Veterinary professionals frequently initiated weight conversations with their clients, although the veterinary team did not often provide actionable information or recommendations to owners of overweight or obese pets; future research should explore potential barriers that may be impeding veterinary professionals from engaging in more thorough weight-related interactions with clients.

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