Could pets be of help in achieving health literacy?
A media analysis demonstration study

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Abstract
This paper asks whether, when seeking to reach the public, interest in the health of pets merits consideration. Our data set consisted of 128 items from Canadian media coverage, 1996–2006, that dealt with bovine spongiform encephalopathy (BSE) as well as with cats, dogs or both. Three main messages regarding pet health and human health were identified: ‘do not worry’, ‘do worry’ and ‘be cautious’. A minority of articles did not convey a pet health message or a human health message (6%), and contradictory messages regarding human and animal health frequently occurred (32%). While we did not assess how members of the public actually received or interpreted these messages, media coverage dealing with pets does appear to have the potential to influence people. Media reports of British cats being harmed by BSE, in fact, may have influenced public views worldwide. Thus, professionals should give careful consideration to pets when conveying health information. Nevertheless, we do not suggest pet health information substitute for human health information. Rather, interest in pets may provide an opportunity to complement and to reinforce communication about human health.

Introduction
Half or more of all households in the United States, Australia and Canada include at least one dog or cat, and pets also reside in ~44% of UK households [1–5]. In taking care of pets, many people demonstrate a remarkably high level of commitment to health. For example, North Americans appear more likely to have their dogs and cats vaccinated against rabies than to have their children vaccinated against influenza [6–9]. People appear to be more likely to exercise regularly once they welcome a dog into their family [10], while a stunning 92% of respondents in a survey of bird owners reported changing their lifestyle to protect and promote the health of their pets [11]. Commitment to pets’ health is also evident in the types of care that some owners fund. Pet dental products on the market today include special chews to reduce plaque, toothpastes with appropriate dog and cat flavours and toothbrushes that fit over human fingers [4]. Pets now undergo chemotherapy, fracture surgery and even kidney transplants [12]. Growing concern about the health and welfare of pets, together with high rates of pet ownership, may present a strategic opening for conveying information pertaining to human health in meaningful ways.

Numerous social science contributions provide a theoretical basis for a key premise of this study: that caring for pets may lead people to retain and to apply information that pertains to human health. People in many non-Western cultures as well as in contemporary Western societies may use the same terminology to describe animal sicknesses as human sicknesses because they view these sicknesses as fundamentally similar [13, 14]. One reason...
for this tendency may be that anthropomorphism—the attribution of human-like mental states (thoughts, feelings, motivations and beliefs) to non-human animals—is found in all known human societies [15–17]. Pets could thus serve as everyday conceptual models when members of the public think about health, disease and risk. Given that effective education initiatives build on people’s everyday lives and concerns [18–22], the extent to which people invest time, money and effort in caring for their pets may warrant greater consideration in health promotion [1, 2, 23]. Emotional engagement and links to everyday routines—both of which characterize pet care—may increase the likelihood of citizens retaining and applying health messages [24–26].

To determine whether references to pets are already part of how scientific health information is conveyed to the public, we analysed media coverage of bovine spongiform encephalopathy (BSE) that dealt with dogs, cats or both. BSE and pet food is an especially interesting case to consider, regarding health literacy and the public understanding of science, because scientific research has confirmed that BSE poses a risk for felines but not for canines. The issue of BSE-contaminated pet food thus underscores that many prion diseases may spread from one species to another species—but not to all species [27, 28]. Our case study investigates whether public communication regarding BSE has relayed this important scientific finding. More expansively, this case study opens the door to considering whether, when conveying complex science to the public, public interest in pet health could serve as an ally. Our findings suggest that media coverage dealing with pets could influence people’s views on health.

Methods

This research project is based on an ethnographic analysis of mass media content identified using computer technology [29, 30]. We adopted this approach because communication does not merely describe or transfer information [31]; instead, communication partly constitutes people’s lived realities [32–34]. For this project, we focused on how the mass media portrayed or framed information regarding human health alongside information regarding the health of cats and dogs. ‘To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a ways as to promote particular problem definitions, causal interpretations, moral evaluation, and/or treatment recommendation for the item described’ [35].

To identify articles in the popular press that dealt with BSE as well as with cats or dogs, we searched two full-text databases: ‘Canadian Newsstand’ and ‘Canadian Business and Current Affairs’. The search terms were ‘BSE and dog’, ‘BSE and cat’, ‘BSE and pet food’, ‘mad cow and dog’, ‘mad cow and cat’ and ‘mad cow and pet food’. We limited the search to items published 1 January 1996 to 31 December 2006, and we compiled each retrieved document as a separate record in an EndNote file [36]. To assist with data organization and analysis, we created a new project file using the software NVivo [37]. Items containing unrelated content were screened out manually. Unrelated content included articles referring to ‘hot dogs’; duplicate content comprised syndicated articles with the same text and title, as well as articles with similar texts but carrying different titles. We retained duplicate content in the analysis because the publication of such items represents conscious decisions on the part of the editors and because, in the process of editing, similar texts did not always convey the same health messages.

The two authors of this paper analysed the data together based on consensus established in face-to-face meetings and by taking turns in working directly with the data set in NVivo. Ethnographic content analysis typically begins with qualitative thematic analysis of a small subsample of a few related documents [29, 30]. We initially used open or free coding to tag and track salient themes [38], focusing on media coverage in the days following the first reported case of BSE in Canada. Through repeated comparisons [29, 30, 39, 40], visual displays [41] and immersed crystallization [42], we gradually refined and organized these themes into
tree-structured codes [38] corresponding with distinct message frames [35]. We also coded each document in the NVivo file according to whether ‘dog’, ‘cat’, ‘feline’, ‘canine’, ‘pet’ or ‘pet food’ appeared in either the title or the first paragraph; by cited sources of information; and by media type.

**Results**

A total of 128 articles met our inclusion criteria: English-Canadian newspaper, magazine or media website content that appeared between 1 January 1996 and 31 December 2006, that were archived in Canadian Newsstand or in Canadian Business and Current Affairs and that dealt with BSE as well as with cats, dogs or both. Sixty-four (50%) of these articles appeared in duplicate, that is, in more than one newspaper or in newspapers as well as on media websites. Pets were the main topic in a minority of the sample, with only 21 (16%) referring to pets either in the first paragraph or in the title. The most common media type in our sample was newspapers ($n = 99$ or 77%), followed by Internet sources ($n = 19$ or 15%).

Information sources varied (see Fig. 1). Most frequently cited were government agencies, officials and reports ($n = 89$ or 70%). Industry sources followed ($n = 45$ or 35%), representing: pet food manufacturers, the Canadian Cattlemen’s Association, beef producers, beef distributors and a manufacturer keen to convert specified risk materials (parts of cattle known to carry an elevated risk for BSE transmission, such as the eyes and the brain) into livestock feed. Scientists were cited 44 times (34%), and a handful of articles referred to a scientific publication ($n = 5$ or 4%). The author of a book lambasting the pet food industry was cited in three articles (2%), while journalists or journalistic texts were mentioned in seven articles (6%). Six articles (5%) cited a relative of someone with Creutzfeldt–Jakob disease (CJD). Ten of the articles (8%) did not name an information source.

Table I quotes directly from the sample to illustrate the ‘do not worry’, ‘do worry’ and ‘be cautious’ themes *in situ*. Figures 2 and 3 present the thematic results for pet health and for human health, respectively. We noted contradictory messages regarding human and animal health in 41 articles or 32%. (A comprehensive inventory of our data sources and analysis is available as a supplemental Table, available at Health Education Research online). To gauge the impact of events related to BSE on messaging patterns, we chronologically plotted the thematic results for pet health and for human health (see Figures 4 and 5, respectively). About one-third of the sample was published prior to confirmation of Canada’s first home-grown case.

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**Could pets be of help in achieving health literacy?**

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![Fig. 1. Information sources cited in the sample news articles.](image-url)
<table>
<thead>
<tr>
<th>Pet health frame</th>
<th>Pet health messages</th>
<th>Human health messages</th>
<th>Human health frame</th>
</tr>
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<tbody>
<tr>
<td><strong>Do worry</strong></td>
<td>To date, our governments state that no dogs have been infected. But at the outbreak</td>
<td>The human food chain may be safe, but how safe are the foods we are feeding our pets?</td>
<td>Do not worry</td>
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<td></td>
<td>of this disease in the U.K., 144 hunting hounds displayed symptoms. By the time</td>
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<td></td>
<td>the brains of these animals were sent to the lab, too much time had elapsed and</td>
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<tr>
<td></td>
<td>an official diagnosis could not be made.a</td>
<td></td>
<td></td>
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<tr>
<td><strong>Do worry</strong></td>
<td>A large number of cats in the United Kingdom were infected with BSE because of</td>
<td>A British expert on mad cow disease says Canada should ban cattle remains from being</td>
<td>Be cautious</td>
</tr>
<tr>
<td></td>
<td>contaminated cat food, so it’s a misunderstanding to believe it doesn’t cross over</td>
<td>processed into animal feed of any kind to avoid possible contamination. That was not</td>
<td></td>
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<td></td>
<td>into other species.b</td>
<td>done in the United Kingdom in the initial stage of the epidemic, and everybody regrets</td>
<td></td>
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<tr>
<td><strong>Do worry</strong></td>
<td>[The] fears intensified last week when the government reported that a cat died</td>
<td>Britain’s chief medical officer tried to calm consumers with a statement that ‘beef</td>
<td>Do not worry</td>
</tr>
<tr>
<td></td>
<td>from a suspected feline version of BSE.c</td>
<td>can be eaten safely by everyone, both adults and children.c</td>
<td></td>
</tr>
<tr>
<td><strong>Be cautious</strong></td>
<td>It is also important to stress that there is no scientific evidence to date that</td>
<td>Lawrence Harrington says he has not eaten British beef for 12 weeks and the hamburger</td>
<td>Do worry</td>
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<td></td>
<td>dogs can contract BSE or any similar disease. In addition, there is no evidence</td>
<td>meat in his butcher shop is Irish. [and] more than 1,000 schools have dropped British</td>
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<td></td>
<td>that dogs can transmit the disease to humans. The CFIA reminds consumers not to</td>
<td>beef from their cafeteria menus.</td>
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<tr>
<td><strong>Be cautious</strong></td>
<td>mix dog food into cattle or other animal feeds.d</td>
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<td></td>
<td>Although dogs can’t contract the disease, authorities said they wanted to advise</td>
<td>Canadian cattle producers are missing about $11 million in lost exports for each day</td>
<td>No clear message</td>
</tr>
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<td></td>
<td>the public that a Morinville, Alta., company may have used rendered material from</td>
<td>the international beef ban is in place. The border closures are also backing up the</td>
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<td></td>
<td>the infected cow in the production of some dry pet food.e</td>
<td>entire industry as packing plants curtail production and cattle sales slow to a trickle.e</td>
<td></td>
</tr>
<tr>
<td><strong>Do not worry</strong></td>
<td>There is no evidence any pet has ever caught a version of BSE from eating tainted</td>
<td>Many pet food products are made with animal by-products considered unfit for human</td>
<td>No clear message</td>
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<td>commercial pet food.f</td>
<td>consumption .... Those by-products could contain animal protein from cows that died</td>
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<td></td>
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<td>of bovine spongiform encephalopathy (BSE). In fact, the cow that was diagnosed with</td>
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<td>BSE after slaughter was sent to a rendering plant in northern Alberta, where its</td>
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<td>remains entered the non-human food chain destined for other farm animals and pets.f</td>
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of BSE, in 2003; and prior to 2003, only one article counselled pet owners not to worry. In particular, five articles conveyed a ‘do worry’ message in reporting on scientific recognition, in 1990, of fe-line spongiform encephalopathy (FSE) arising from domesticated and wild cats being fed products contaminated with BSE. Canada’s first home-grown case of BSE was identified as unhealthy at the time of slaughter and routed to a pet food manufacturer. Pet food, therefore, featured in subsequent media coverage. Yet in contrast to the earlier coverage, from 2003 through 2006, the dominant message about both pet and human health was ‘do not worry’. We did not identify any false reports of BSE as a confirmed health risk for dogs, but we uncovered two examples of speculation about the possibility of prion disease in canines.

### Discussion

Previous analyses of media coverage have considered BSE in relation to variant CJD [43–46], but not in relation to any other diseases that have been linked to prions. Our study appears to be the first to integrate consideration of FSE into an analysis of BSE media coverage. Meanwhile, researchers have previously suggested that attachment to pets might lead some people to disregard or to follow health professionals’ advice regarding matters such as asthma and physical activity [1, 2, 47]. Our study suggests that, through exposure to media coverage dealing with food animals as well as pets, the opportunity exists for people to form opinions and to absorb messages concerning human health. The results have led us to question whether the discovery of FSE in Britain heightened public anxiety, via mass media communications, regarding BSE as a potential threat to human health. Additional research might reveal that FSE has played a more important role than has previously been supposed in shaping public perceptions of BSE.

Our study’s strengths include a systematic approach to data collection [48]; a fine-grained ‘bottom-up’ or inductive approach to data analysis,
which is particularly appropriate for novel research topics [40]; the longitudinal dimension of the study and the breadth of media considered, given that media usage is not uniform in heterogeneous populations [49]. The most significant limitation of our study is that we did not assess how members of the public actually received and interpreted the health messages that we found in BSE media coverage dealing with dogs or cats [50]. For instance, we cannot say how many people actually read the news items and read them in their entirety, and yet pets were peripheral to most items included in our study. Moreover, people with higher socio-economic status are more likely to read newspapers, magazines and website content more than are people with lower incomes and less education [51]. The purpose of this study was, however, to consider BSE communication as an example of how health literacy may entwine with thinking about pets.

A major news story that broke during the preparation of this article confirms that interest in pet health may have implications for human health. More than 60 million cans and pouches of dog and cat food manufactured by Menu Foods in Canada and sold under numerous brand names were recalled after these products were linked to death from kidney failure in several pets, in Canada and in the United States. At least one person has required

Fig. 3. Distribution of human health message frames.

Fig. 4. Pet health message frames in relation to prion disease events over time.

1. Specified Bovine Offal: the brain, spinal cord, spleen, thymus, tonsils and intestines of a bovine animal.
2. World Health Organization
3. World Organisation for Animal Health / Organisation mondiale de la santé animale
4. Specified Risk Material: new term for Specified Bovine Offal and defined in Canada as the skull, brain, trigeminal ganglia eyes, tonsils, spinal cord, vertebral column, dorsal root ganglia, and the distal ileum of a bovine animal.
5. Canadian Food Inspection Agency
medical attention, after eating the tainted food in an effort to convince her dog to do the same [52]. Politicians have been called upon to account for the lack of government regulations in Canada concerning pet food [53], and the US Senate and House of Representatives have both held hearings on pet food safety [54]. Moreover, the Menu Foods’ pet food scandal has been covered in such high-profile international media outlets as ‘The New York Times’ [55], and the discussion has encompassed BSE and FSE, as well as commentary on the quality of people’s diets in relation to table scraps fed to dogs [56]. In other words, this scandal has served as a ‘teaching moment’ regarding prion disease and human nutrition. The extent of media coverage and public concern surrounding the Menu Foods’ pet food scandal suggest that the time is ripe for initiatives linking pets with health education.

Since the discovery in Canada of home-grown BSE, in 1993, our sample consistently exhibited mixed messages concerning human and pet health. Yet the transmission potential of BSE to humans appears to have been grasped by Canadian journalists and likely by many citizens too. Our findings suggest a presumption of food-chain transmission in Canadian media coverage. Little public attention, however, has been paid to the potential for so-called ‘sporadic’ prion disease cases of unknown origin, which may comprise most cases of CJD in people [27]. Moreover, ambiguity concerning FSE suggests that the cross-species transmission potential of prion disease has been underplayed. This situation is troubling because the potential exists for members of the public to feel betrayed—not only by journalists but also by scientists and public officials.

The Canadian government has banned, effective July 2007, the inclusion of specified risk materials from all products intended for animal consumption, including pet food. The stated rationale for extending feed control measures to pet food, however, has...
nothing to do with pet health. Instead, this measure was adopted because ‘[o]n farms where livestock and domestic pets may live together, cattle may be inadvertently or intentionally exposed to pet food.’ [57] The results of our study suggest a broader rationale for regulating pet food: many people care deeply about their pets. Furthermore, people do sometimes eat pet food, especially low-income people [58].

Cultural views on animals have begun to be integrated into public health planning in developing countries [59, 60], but these insights may also have application for health promotion in wealthier countries where pets are commonly kept. While profit-motivated pet food manufacturers and other businesses seek to leverage people’s concerns about pet welfare [61], health professionals and government officials could also consider pets when seeking to convey and translate health science information for members of the public. At the very least, health professionals and government officials should carefully choose their words when discussing pet health. Public trust may be at stake.

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Conflict of interest statement

None declared.

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