Enhancing the knowledge level of dog owners using an electronic self-learning module

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ABSTRACT

The present study was taken up to assess the knowledge about dog health and management among the pet owners and the effectiveness of a need based electronic self learning module "Dog Health Management Trainer" (DHMT) for enhancing their knowledge. The DHMT was developed and tested on 100 dog owners visiting the polyclinic at IVRI. Results revealed that dog owners were mainly facing problems related to diseases of skin, gastrointestinal system and parvoviral infection besides various other problems. Majority of the owners had medium knowledge about dog diseases while low knowledge about dog breeding and reproduction. Results revealed that DHMT was highly effective in enhancing the knowledge level and dog owners found it very much interesting and user friendly with an overall utility index of 0.87. The price proposed was negatively and significantly correlated with the pre-test knowledge scores for dog health indicating that those dog owners who were having low knowledge quoted higher price for procuring the DHMT.

Key words: Dog health management, Electronic learning, Knowledge level

Around 70 to 87% of individuals consider their pets full-fledged members of their families (Beck and Katcher 1996). The knowledge level of dog owners concerning the epidemiology, diagnosis and management of canine vector-borne and parasitic diseases and their zoonotic potential is poor, and they require appropriate health care information (Rani *et al.* 2010, Basarajappa *et al.* 2014). Unfortunately, a limited amount of disease-specific veterinary information, written at an appropriate reading level, is available and accessible to consumers (Murphy 2006). The need for the awareness of the proper management of the pet dogs and their health care assumes pivotal importance (Sudershan *et al.* 2006). The present study was, therefore, undertaken to assess the knowledge about dog health and management among the pet owners and the effectiveness of a need based electronic self learning module "Dog Health Management Trainer" (DHMT) for enhancing their knowledge.

MATERIALS AND METHODS

The DHMT was specifically developed based on the information needs of dog owners (1,000 dog owners from

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10 different clinics of 10 randomly selected cities of the country). The DHMT is a flash based application and can be used by the dog owners themselves for self-learning. In this self learning module, dog owners can select the particular aspect related to dog health and would be able to view the text information with visual and audio. The system provides the detailed stepwise information to the dog owners regarding various important aspects of dog general management, nutritional management, health care management, breeding management and also educates the dog owners about the first aid for various common ailments of dogs and provides information on the vaccination and deworming schedules. The DHMT provides detailed information of 50 dog breeds on the various aspects. The DHMT was tested on 100 dog owners visiting the IVRI polyclinic. A pre-post test research design was followed for the impact assessment of the DHMT on the knowledge level of the dog owners. A pre-test with total of 10 questions with multiple choice answers were prepared related to 2 aspects i.e. dog health and diseases and dog breeding and reproduction. The respondents had to tick mark the right answer out of the choices given. These answers were then totaled to achieve at the total pre-test scores on each of the selected aspects for each of the respondents. After the pre-test, the DHMT was screened before them. They were allowed to use it themselves for accessing information. They were asked to see four important sections and go through

rigorously i.e. dog health, dog diseases, vaccination and deworming and dog breeding and reproduction. After they were satisfied that they have gone through and grasped all the information related to the topics, a post-test questionnaire with the same set of questions as given in the pre-test was given to them. They were asked to answer to the questions. The pre and post test results were tested for significance using paired 't' test with the help of SPSS package. Further, the respondents were asked to rate the DHMT on various parameters related to its utility. The utility index was calculated on the basis of respondents rating of each indicator and obtaining its weighted scores which were then divided by the total achievable score for each indicator. It was also assessed that whether they would be willing to pay for procuring the system.

RESULTS AND DISCUSSION

Socio-economic profile and information sources: Results revealed that majority of the dog owners (44%) visiting the clinics were young (19–34 years) and mostly males (76%) with a high education level (post graduate and above 45% and graduates 41%) and most of them (36%) had business followed by 32% in private sector. Equal percentage of respondents belonged to nuclear and joint family types, which is contrary to the general opinion that dogs are part of most of the nuclear families. Majority (48%) had an annual income of less than 2 lakh with an average of 2.84 lakh. Most of them (67%) possessed male dogs and most of them had Labrador, followed by German Shepherd, Pomeranian and Pug. Fifteen breeds were found with the dog owners. Other researchers also reported the liking for Labrador, German Shepherd and Pomeranian as pet dogs (Hadge *et al.* 2009; Sawaimul *et al.* 2009 and Basarajappa *et al.* 2014). Most of them (50%) were rearing dogs since less than 5 years; however, the average was 8.07 years. Major sources accessed for information on dog were veterinary practitioners (78%) followed by internet (67%) as reported by majority, besides other sources such as dog owners, breeders, books and magazines. The most reliable source of information for most of them was the internet which reveals the self-learning interest of the dog owners, which is in agreement with the earlier report by Basarajappa *et al.* (2014).

Major problems/diseases and treatment: Results revealed that many of the respondents did not know the disease exactly and could only answer about the symptoms. It was found that the major diseases/problems were fever (55%) followed by skin problem (43%), vomition/diarrhoea (38%), annorexia (34%), parvoviral infection (10%), hepatitis/liver problem and jaundice (7%), CD (6%), alopecia, anaemia, pneumonia, cough and cold (5%), epistaxis (4%), ectoparasites (4%), otitis (4%), cancer (3%), babesiosis (2%), leptospirosis (2%), epilepsy (2%), rabies (2%), kidney/UTI (2%). Various other problems such as aural hematoma, dental problem, brain stroke, hip dysplasia, ascites, cataract, fracture/wound, death of puppies in womb, hind legs incoordination, gangrene were 1% each. The

average annual treatment cost for a dog in the sampled population was ₹ 4,306.

Results revealed that all dog owners were practicing vaccination, although annual booster vaccination for rabies was followed by only 68% of the owners. Other researchers also reported that vaccination was routinely followed by majority of dog owners (Sawaimul *et al.* 2009). Further, with regards to the combined vaccine (DHPPiL), around 60% had vaccinated their dogs using the combined vaccine, but the annual booster vaccination for the same was followed by only 93.3% of the owners. Basarajappa *et al.* (2011) also reported that rabies vaccination was followed by majority of the dog owners (64.5%), while combined vaccination was practiced by only 49.5%. With regards to deworming, it was found that around 94% of the owners had at some time practiced deworming although regular deworming was practiced by majority of the (79.8%) owners. Basarajappa *et al.* (2011) reported that majority of dog owners were deworming their dogs.

Knowledge level about diseases, breeding and reproduction: Pre-test scores

It was found that out of the 10 questions on dog health, majority of the dog owners had correct knowledge about 4 aspects mainly related to rabies, viz. the causative organism, first dose, booster dose and the preferable time of vaccination. Various other questions were not answered rightly by most of them. These aspects were whether rabies can be cured, the full form of DHPPiL, deworming for adults and puppies and disease with highest mortality and morbidity next to rabies. The average pre-test scores for knowledge about dog health and diseases were 4.6±1.9. Majority of the respondents (56%) fell in the medium knowledge score category (4–6). Basarajappa *et al.* (2011) reported that majority of dog owners are knowledgeable about rabies. It was also reported that majority of the dog owners do not know the species of dog intestinal parasites, the mechanisms of transmission, the risk factors for zoonotic infections and specific prophylactic measures (Katagiri and Oliveira 2008).

The knowledge about dog breeding and reproduction was further found lower than the knowledge about dog health. It was found that out of the 10 questions only 1 question was rightly answered by majority (60%) of them i.e., whether sexual maturity in female dog depends on breed size. Rest all the questions were wrongly answered by most of them. These questions included period of heat cycles, availability of blood and urine based pregnancy kits for dogs, rectal temperature 24 h before the onset of labor in bitches, maturity age of male dogs, minimum days for X ray and ultrasonography diagnosis of pregnancy, gestation period, whether there is a sexual cycle in male dogs and the minimum days required for a veterinarian to be able to diagnose pregnancy by feeling the abdomen. The average pre-test scores for knowledge about dog breeding and reproduction was 3.5±1.8. Majority of the respondents (58%) fell in the low knowledge score category (< 3). Hadge

*et al. (*2009) and Basarajappa *et al.* (2014) also reported poor knowledge about dog breeding and reproduction. Results revealed that the average overall scores were 8.0±3.0. Majority of the dog owners (66%) fell in the medium knowledge score category (7–13).

Effectiveness of DHMT on the knowledge level: Post-test scores

The post-test knowledge (post-exposure to DHMT) on the dog health and diseases revealed that majority of the dog owners were able to answer to all the questions correctly. The average post-test score was 8.5±1.5 and most of the dog owners (94%) fell in the high knowledge score category (7–10). None of the respondent was in the low knowledge score. The post-test knowledge score on the dog breeding and reproduction also revealed that majority of the dog owners were able to answer to all the questions correctly. The average post-test scores were 8.1±1.6 and most of the dog owners (83%) fell in the high knowledge score category (7–10). The overall post-test scores also revealed that majority of the respondents were in the high knowledge score category (14–20) with an average score of 16.7±2.5. It was found that for both the aspects of dog health and diseases and dog breeding and reproduction, the average gain in knowledge was highly significant. The utility index of the software revealed that DHMT is effective in providing complete information (0.93), useful (0.85), user friendly (0.87), interesting (0.84) and relevant (0.86). The overall utility index was found to be 0.87. Further, majority of the respondents were willing to pay for DHMT (87%) and the average price quoted for it was ₹ 214.80/CD. Only around 13% of the respondents indicated that DHMT should be made available for free.

The factors associated with the knowledge level and gain in knowledge of respondents due to DHMT were assessed and it was found that experience in rearing and total treatment cost were significant and positively correlated with the pre-test knowledge score of the respondents about dog health and diseases (0.20 and 0.26) and overall pre-test scores (0.20 and 0.23) indicating that those with higher experience were having more knowledge and those with higher knowledge were spending more on the treatment of their dogs annually. The correlation between total pre-test scores and post-test scores was significant and positive (0.34) indicating that those who had higher knowledge earlier also gained significantly after the exposure to DHMT.

Further, the price proposed was found to be negatively and significantly correlated with the pre-test knowledge on dog health and diseases (–0.28) indicating that those dog owners who were having low knowledge quoted higher price for procuring the DHMT .

In conclusion, majority of the respondents had medium knowledge about dog health and diseases and low knowledge in dog breeding and reproduction. Study revealed that the need based electronic self learning module (DHMT) was highly effective and user friendly in enhancing the knowledge level of dog owners.

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REFERENCES

Basarajappa A D, Tiwari R, Roy R, Singh D, Matt W T and Arora D. 2014. Information need of owners regarding dog's healthcare, zoonotic diseases and marketing. *Advances in Animal and Veterinary Sciences* **2**(3): 148–49.

Beck A and Mand Katcher A H. 1996. *Between Pets and People: The Importance of Animal Companionship.* Pp: 344. Purdue University Press, West Lafayette, IN, USA.

Hadge M R, Prajakta K, Saleha N and Raja A A. 2009. Socio economic status of dog keeper in Akola city of Vidarbha Region. *Indian Journal of Animal Research* **43**(2): 151–52.

Katagiri S and Oliveira–Sequeira T C. 2008. Prevalence of dog intestinal parasites and risk perception of zoonotic infection by dog owners in São Paulo State, Brazil. *Zoonoses Public Health* **55**(8–10): 406–13.

Murphy S A. 2006. Consumer health information for pet owners. *Journal of the Medical Library Association* **94**(2): 152–58.

Rani P A M A, Irwin P J, Gatne M, Coleman G T and Traub R J. 2010. Canine vector–borne diseases in India: A review of the literature and identification of existing knowledge gaps. *Parasite and Vectors* **3**: 28.

Sawaimul A D, Sahare M G, Ali S Z, Patil L V, Taksande P E and Hadole K A. 2009. Socio-economic status of dog owners in Nagpur region of Maharashtra. *Veterinary World* **2**(6): 229.

Sudarshan M K, Mahendra B J, Madhusudhana S N, AshwoathNarayana D H, Rahman A, Rao N S, X–Meslin F, Lobo D, Ravikumar K and Gangaboraiah. 2006. An epidemiological study of animal bites in India: results of a WHO sponsored national multi–centric rabies survey. *Journal of Communicable Diseases* **38**(1): 32–39.