

KNOWLEDGE ENRICHMENT DRIVE ABOUT ZOONOTIC DISEASES WITH AID OF VIDEO INSTRUCTIONAL MATERIAL

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Received: 16.11.2022; Accepted: 22.02.2023

ABSTRACT

The present study describes the designing and evaluation of video instructional material entitled “Awareness about common zoonotic diseases for Veterinary students and dairy farmers” uploaded on YouTube channel IDP-NAHEP, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana (<https://youtu.be/4G-k2rDPKWA>). A field level survey of 394 dairy farmers (with minimum of 5 milch animals) from all the six different agro-climatic zones of Punjab was done to assess their knowledge level, current practices followed before, during and after occurrence of three common prevalent zoonotic diseases (Brucellosis, T.B and Rabies) under field condition. After analyzing the gathered information and consultation with subject matter experts, the video instructional material was devised in native/local language i.e. Punjabi. The overall mean of various measures of Appropriateness of Multimedia Elements was reported to be 4.23 out of 5 (84.6 %). There is 48.83% increase in knowledge level of dairy farmers about zoonotic diseases (5.57±0.15) knowledge score for Pre-exposure group vs. 8.29 ± 0.13 knowledge score for post-exposure group) after seeing video instructional device. Majority of the dairy farmers under study were satisfied with content, visual quality and sound quality and responded that it can be used as a resource material for educating other dairy farmers.

Keywords: Disease, Knowledge, Instruction, Video, Zoonosis

How to cite: Khurana, N., Kasrija, R., Sharma, R. and Sharma, R.K. (2024). Knowledge enrichment drive about zoonotic diseases with aid of video instructional material. *The Haryana Veterinarian* 63(1): 83-86.

According to 20th livestock census, India is house of largest livestock population in the world i.e. 535.78 million, among which 192.49 million are cattle and 109.85 million are buffalos. Also, the total livestock population of Punjab is 69.92 lakhs, out of which 25.31 lakhs are cattle and 40.15 lakhs are Buffaloes. The milk production in India and in Punjab state was reported to be 1877.5 lakhs tones and 125.99 lakhs tones, respectively. Punjab state contributes 6.7% of milk production of country. (Basic Animal Husbandry Statistics 2019, GOI). Also, there is continuous demand of milk and milk products in the market as dairy products are integral part of human diet. Due to this, there is bright future for dairy farming and many farmers had invested huge investments in this venture. There is mushrooming up of large dairy farms. But, in broader sense, dairy farming is a 24 hours job i.e. dairy farmer/manager/laborer should be available round the clock for management of animals. So, a lot of persons are involved in dairy farming. But there are chances of transmission of some diseases from dairy animals to farmers, which can affect health of farmers. These diseases are called Zoonotic diseases or Zoonosis. According to World Health organization, any disease/infection that is naturally transmissible from vertebrate animals to humans is known as Zoonosis, which comprise of major fraction of new and existing diseases in humans (Anonymous, 2021a). So, dairy farmers along with Veterinarian are the susceptible population for acquiring Zoonosis, as they are

directly working with animals. Beside management, feeding, milking of dairy animals, even treatment and cure of sick animal is done by humans. According to Centers for Disease Control and Prevention reports, more than 60 percent of known humans' infectious diseases can spread from animals and 75 percent of new or emerging infectious diseases of humans come from animals (Anonymous, 2021b). So, along with getting maximum profit from dairy animals, there is also dire need to protect the susceptible population from zoonotic diseases. Under field conditions, three Zoonotic diseases namely Brucellosis, Rabies and Tuberculosis are prevalent and cause serious health effect. So, the dairy farmers and Veterinary staff (most susceptible population) should be aware of the symptoms, transmission routes and preventative actions for these Zoonotic illnesses. These illnesses have a negative impact on the health of them in addition to generating productivity losses in animals. The extension persons are regularly organizing training programmes, field days or awareness camps and they need some suitable instructional device for teaching the vulnerable population about these zoonotic diseases. Also, the need based video instructional material (made after conducting survey on dairy farmers and after consultation with Subject matter specialists) on zoonotic diseases once developed, can create a simulated/virtual experience for the farmers and this material can be replicated to address the queries of farmers at different places. The devised video instructional material is easy to store and to carry to distant places. If this video instructional material is made

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in local language i.e. Punjabi, then the dairy farmer can themselves see it and understand it even in the absence of extension agent. So, keeping above facts in mind, the present study was designed to evaluate need based video instructional material about zoonotic diseases.

MATERIALS AND METHODS

- a) **Sampling plan :** A field survey was conducted in all the six different agro-climatic zones of Punjab state. From each agro climatic zone, two districts were randomly selected and from each agro-climatic zone, dairy farmers (having a minimum of 5 milch animals) were selected. Assuming that 50 percent of the subjects in the population have the factor of interest, this study would require a sample size of 385 for estimating the expected proportion with 5% absolute precision and 95 percent confidence (Dhand and Khatkar, 2021). So, in present study, a total number of 394 dairy farmers agreed to participate.
- b) **Tools of data collection:** The information was gathered through personal interviewing of dairy farmers and by visual observation technique on various important aspects during year 2021. The knowledge level of dairy farmers about various zoonotic diseases, current practices followed by the dairy farmers during, before and after occurrence of these zoonotic diseases and various factors affecting adoption of scientific practices before, during and after zoonotic diseases were ascertained by directly asking the dairy farmers and by observation at their dairy farm.
- c) **Designing the manuscript:** After scrutinizing the gathered information and after consulting subject matter experts, the manuscript for need based video instructional material about three common prevalent field zoonotic diseases (namely Brucellosis, Rabies and Tuberculosis) in local language i.e. Punjabi was devised. The manuscript was divided in to following major sub heads:
 - (i) General introduction about disease
 - (ii) Transmission of disease in animals
 - (iii) Signs of disease in animals
 - (iv) Transmission of disease in humans
 - (v) Signs of disease in humans
 - (vi) Preventive tips
- d) **Development of Multimedia elements :** Each and every multimedia element (i.e. text, graphics, audio, videos etc.) was created independently in accordance with the specifications of the generated narrative board contents. The content was typed using the Punjabi font Anmol Lipi in the Micro-Soft Office Word program. Using Microsoft PowerPoint and Adobe Photoshop, the graphic images were created as needed. The video was shot in accordance with the written manuscript. Video footage from reported field cases involving zoonotic illnesses at dairy farms, veterinary hospitals in the field, and at the Teaching Veterinary Clinical Complex was recorded using digital and mobile cameras. These digital files were kept in the computer. The collected videos were edited in accordance with the manuscript's requirements. The background narrative for the video instructional material was recorded in Punjabi (vernacular language). Text, video, and audio files were all in synchronization. Additionally, literature was paired with background music to break up the monotony and create a light learning environment.
- e) **Creation of unfinished video instructional content:** Video editing was done with Adobe Premier CS-5 Pro software, audio editing was done with Sony Sound Forge-10 software, animation was done with Adobe Premier CS-5 Pro software, and photos and special effects were done with Adobe Photoshop.
- f) **Validation of Video instructional material:** Ten faculty members (including subject matter experts and faculty members of the Department of Veterinary and Animal Husbandry Extension Education) assessed the multimedia components of the video instructional material using a five-point rating system. The created video instructional material was then assigned an overall rating score (out of 5) based on the four attributes as per the procedure adopted by Kasrija and Verma (2020).
- g) **Modification for final Video instructional material:** The raw video instructional material was modified on the basis of suggestions (like font size, mistake in text, Text colour etc) of experts after validation.
- h) **Testing of effectiveness of Video instructional material:** The devised video instructional material was tested for effectiveness by showing it to 100 dairy farmers. A total of 12 questions related with zoonotic diseases described in video instructional material were selected. Knowledge score of dairy farmers were calculated for pre-exposure group and post-exposure group to video instructional material. Also, the evaluation of video instructional material was done on 5-point continuum-namely. Most satisfied, Satisfied, Neutral, least satisfied and Not satisfied. The tested parameters were coverage of

the contents related to Zoonotic diseases, contents suitable to needs of dairy farmer, understandability of contents, overall visual quality, overall sound quality, easiness in using the video instructional material, enhancement of knowledge after seeing video film.

- (I) **Statistical analysis:** Microsoft Excel was used to tabulate the data that was gathered, and SPSS version 26.0 was used for analysis.

RESULT AND DISCUSSION

While measuring appropriateness of multimedia elements of devised video instructional material, five domains are taken in to consideration. Under first domain i.e. Text of video instructional material, the font size obtained mean score of 4.22 out of 5, while Font colour got 4.17 score out of 5. Under second domain i.e. stills/visuals of video instructional material, the obtained mean score was 4.22, 4.00, 3.94 and 4.50 for illustrativeness, sharpness, placement and for rationality respectively out of 5. Under 3rd domain i.e. videos, the obtained mean score was 4.60, 4.50 and 4.44 for clarity of video, rationality and for duration respectively. Under 4th domain i.e. graphics of video instructional material, the obtained mean score was 4.05 and 4.39 (out of 5) for comprehensibility and rationality part of video. Under 5th domain i.e. audio component of video instructional material, the obtained score was 4.33, 3.89, 4.28, 4.17, 4.44, 4.00, 4.05 for rationality of Manuscript, pronunciation, speed, pause, emphasis, synchronization and background music respectively out of 5. The overall mean score of measurement of appropriateness of video instructional material was reported to be 4.23 out of 5, which suggest that the developed video instructional material is of good quality and met all the requirements for a typical video-based instructional device. These findings were in line with earlier studies. Singh (2012), who created a CD-ROM on dairy entrepreneurship, noted similar outcomes, stating that the multimedia elements' mean score, as evaluated by subject matter experts, was 3.67 (out of 4). Sharma (2015) created a CD-ROM on abortion in dairy animals, and the subject matter experts scored the multimedia elements' mean score as 3.74 (out of 4). According to Kasrija (2016), experts evaluated various features of multimedia materials with mean scores ranging from 4 to 5. The DVD on repeat breeding had an average score of 4.41 out of 5. Additionally, he stated that specialists had assigned a mean score of 4.2 to 4.8 to various parts of multimedia materials, with the DVD on anoestrus receiving an average of 4.47 out of 5.

Table 1 and Table 2 describe the effectiveness of video instructional material. It is clear from Table 1 that

there is 48.83% increase in knowledge level of dairy farmers about zoonotic diseases (5.57 ± 0.15 knowledge score for Pre-exposure group vs. 8.29 ± 0.13 knowledge score for post-exposure group). This suggests that the devised video instructional material enhances knowledge in a significant way and can be used as an extension teaching tool. Similar finding was reported by Meena *et al.* (2014), who reported that by using pre- and post-exposure knowledge tests, the educational Digital Video Disk (DVD) created on perceived needs of Improved Dairy Farming Practices (IDFPs) was beneficial in terms of knowledge growth about IDFPs among the dairy farmers. The majority of respondents expressed satisfaction with the information's ability to increase knowledge, suitability for field situations, boost self-confidence, pique curiosity and interest, completeness, credibility, simplicity, and logical information presentation.

Table 2 depict the response of the dairy farmers about video instructional material. Majority of the dairy farmers showed a positive response (75% most satisfied and 20% satisfied) with the content and responded that this video instructional device addresses their needs. Most of the farmers were satisfied with visual quality and sound quality. Majority of dairy farmers were satisfied with this video instructional material as a knowledge enrichment material and responded that it can be used as a resource material for educating other dairy farmers. In an earlier study at Kannur district of Kerala, educational interactive video DVD was reported to be an appropriate tool to disseminate knowledge on dairy health management practices. On exposure to the health care management practices through video DVD, all the respondents were convinced about the use of scientific management practices and all the respondents were willing to adopt the practices symbolically (Vidya *et al.*, 2010).

Table 1. Knowledge score of dairy farmers after showing video instructional material

Knowledge score (Mean \pm S.E.)	
Pre-exposure group (n=100)	Post exposure group (n=100)
5.57 ± 0.15^a	8.29 ± 0.13^b

Figure with different superscript differ significantly at $P > 0.01$ level

Kasrija and Verma (2020) also created a DVD on anoestrus for dairy farmers in Punjab. They reported that the farmers who responded were happy with the visual quality, chapter-by-chapter organization, appropriateness of the contents based on their understanding level, and ease of use of the video-DVD. This suggests that the developed DVD is an excellent resource for farmers to increase their knowledge, is farmer-friendly, and meets their satisfaction level.

Table 2. Satisfaction level of dairy farmers after viewing video instructional material on awareness about zoonosis

Sr. No.	Parameters	Response (n=100)				
		Most satisfied	Satisfied	Neutral	Least satisfied	Not satisfied
1.	Coverage of the contents related to Zoonotic diseases	80	20	0	0	0
2.	Contents suitable to needs of dairy farmer	75	20	5	0	0
3.	Understandability of contents	76	22	2	0	0
4.	Overall visual quality	85	14	1	0	0
5.	Overall sound quality	83	13	2	2	0
6.	Easiness in using the video instructional material	73	14	8	5	0
7.	Enhancement of knowledge after seeing video film	78	21	1	0	0

In addition, Kadian and Gupta (2006) found that a video compact disc (VCD) on dairy calf management techniques was more successful than three other forms of instruction-lecture, audio, and book only.

After checking validation and effectiveness of the devised video instructional material, it was uploaded on Guru Angad Dev Veterinary and Animal Sciences University YouTube channel (namely IDP-NAHEP, Guru Angad Dev Vet & Animal Sci Univ.) on 30.09.2021 (link <https://youtu.be/4G-k2rDPKWA>). This video film has 620 views and 42 likes on 23.12.2023.

CONCLUSIONS

The need based devised video instructional material (developed after interviewing dairy Farmers and after checking by subject matter experts) proved to be future resource material for knowledge enhancement of dairy farmers. So, more video instructional materials about common problems faced by dairy farmers should be made for their knowledge enhancement.

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