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**Original Research Article****Awareness and attitude regarding common zoonotic diseases among farmers****Satish Prabhakar Masavkar<sup>1</sup>, Aman Mubarak Naikwadi<sup>2</sup>**<sup>1</sup>Professor, Dept of General Medicine, SMBT Institute of medical Sciences & Research Centre, Dhamangaon Tal. Igatpuri, Dist. Nasik, Maharashtra, India<sup>2</sup>Asst Professor, SMBT Institute of medical Sciences & Research Centre, Dhamangaon Tal, Igatpuri, Dist. Nasik, Maharashtra, India**\*Corresponding author**

Dr. Satish Prabhakar Masavkar

Email: [faridi17@rediffmail.com](mailto:faridi17@rediffmail.com)

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**Abstract:** Zoonoses are the naturally transmitted infections between vertebrate animals and humans. Various zoonotic diseases often make up the majority of the community acquired infections. The spread of the zoonotic diseases should be prevented, which can be acquired by providing behavioral training and information. The purpose of the present study was to determine the awareness and attitude of the farmers about the common zoonotic diseases. The Materials and methods in the study were consisted of sheep, goat and cattle farmers of the nearby rural areas. The farmers were asked questions about the knowledge of zoonotic diseases in general. Also farmers positive attitude towards the prevention of the zoonotic diseases were recorded. About 10 questions of awareness and 10 questions of attitude towards the zoonotic diseases were given in a written format to each of the participants. The Results in the study was included of 238 farmers from the nearby villages and the responses of all the participants were collected, tabulated and analyzed by using percentage analysis. Out of the 238 participants, 158 (66.38%) showed positive awareness towards the zoonotic diseases, while 142 (59.66%) showed positive attitude towards the prevention of the zoonotic diseases. In Conclusion the Continued education and awareness bringing programmes and collaboration between veterinary and human health care professionals were considered to be important to bring awareness among the public about zoonotic diseases and to combat those diseases.

**Keywords:** Farmers, Zoonotic diseases, Awareness

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**INTRODUCTION:**

Interactions between the living things living together are inevitable. Although it is compulsory to provide mutual benefit in interspecies relation for the continuity of life, once the balance is impaired the life is imperiled reciprocally. Zoonotic diseases are the most striking example which transferred between animals and persons in a natural way (bacteria, parasite, fungi and virus) [1].

Zoonoses, diseases and infections that are naturally transmissible between vertebrate animals and humans, are among the most frequent and dreaded risks to which mankind are exposed. The emergence and re-emergence of zoonoses and its potentially disastrous impact on human health are a growing concern around the globe [2]. Brucellosis, rabies, human African trypanosomiasis, bovine tuberculosis, cysticercosis, echinococcosis, and anthrax are listed as seven endemic zoonoses of concern [3]. In developing countries, they constitute an important threat to human health

especially for societies that domesticate and breed animals for food and clothing [4].

The link among humans, animal populations and the surrounding environment is very close in many developing countries, where animals provide transportation, draught power, fuel, clothing and sources of protein (that is, meat, eggs, and milk). In the absence of proper care, this linkage can lead to a serious risk to public health with huge economic consequences [5]. In the training of farmers regarding the zoonotic diseases the influence of the physician is emphasized [1]. Therefore it is very important that the farmers which are in close contact with these animals should have sufficient awareness about these zoonotic diseases as well as its prevention to avoid the risk of infection transmission. This study was planned to evaluate the awareness and attitude of the farmers towards the common zoonotic diseases.

**MATERIALS AND METHODS:**

The study was consisted of sheep, goat and cattle farmers of the nearby rural areas. The farmers were asked questions about the knowledge of zoonotic diseases in general i. e. transmission of zoonotic diseases, names of zoonotic diseases, primary signs and symptoms, their preventions, equipment needed for the prevention, management, etc. Also farmers positive attitude towards the prevention of the zoonotic diseases such as regular veterinary control, hand wash, glove use, mask use, boot wearing, avoiding contact with scary hands, boiling milk, avoid raw meat eating, disposal of animal carcass, etc. were recorded. Approval from the ethical committee was taken before start of the study and informed consent was also obtained from all the participants. Only those participants who were willing to participate in the study were included. About 10 questions of awareness and 10

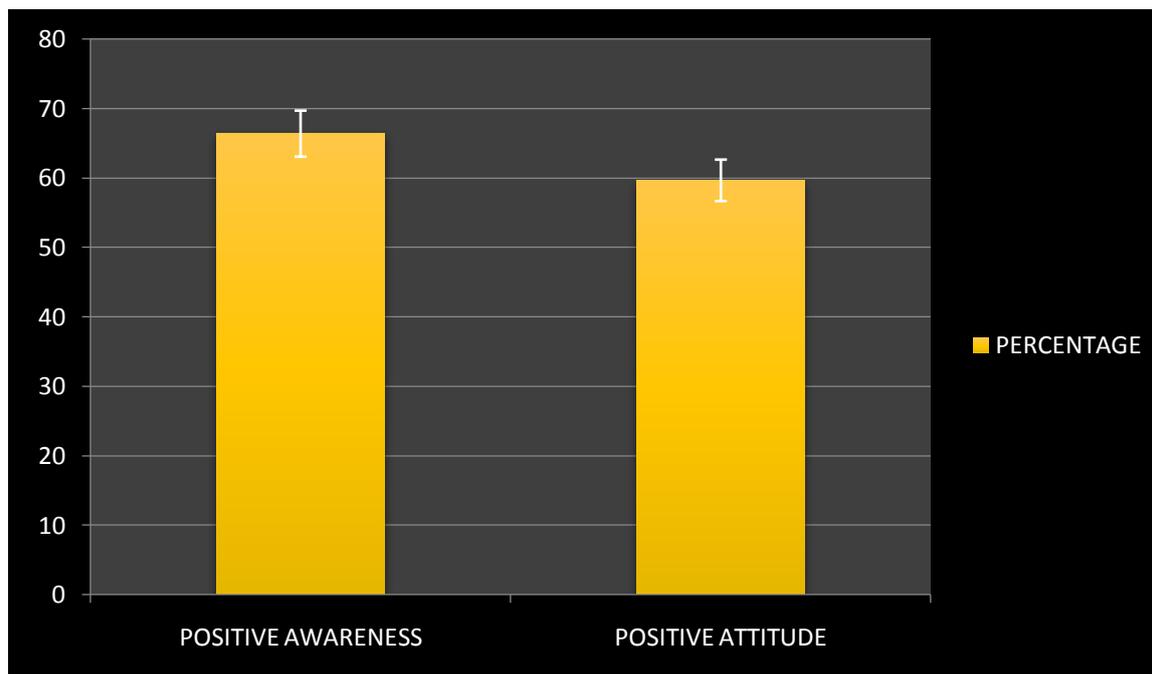
questions of attitude towards the zoonotic diseases were given in a written format to each of the participants. The questions were also provided in their local language for the farmers so that it can be easy to understand for these people. Each question was given one value and the scores above mean value are determined as having positive awareness or positive attitude.

**RESULTS:**

The study was included of 238 farmers from the nearby villages and the responses of all the participants were collected, tabulated and analyzed by using percentage analysis. Out of the 238 participants, 158 (66.38%) showed positive awareness towards the zoonotic diseases, while 142 (59.66%) showed positive attitude towards the prevention of the zoonotic diseases. (Table 1, Graph 1)

**Table 1: Table showing the percentage of positive awareness and positive attitude of the participants regarding the various zoonotic diseases**

Category	Number of participants	Positive awareness n (%)	Positive attitude n (%)
Awareness/ attitude of zoonotic diseases in farmers	238	158 (66.38%)	142 (59.66%)



**Fig 1: Graph showing the percentage of positive awareness and positive attitude of the participants regarding the various zoonotic diseases**

When studying according the various characteristics of farmers about the zoonotic diseases awareness and attitude, it was found that participants having age < 40 years shown more positive awareness [82(73.21%)] than those having age > 40 years [76(60.31%)]. Among participants (106), the positive

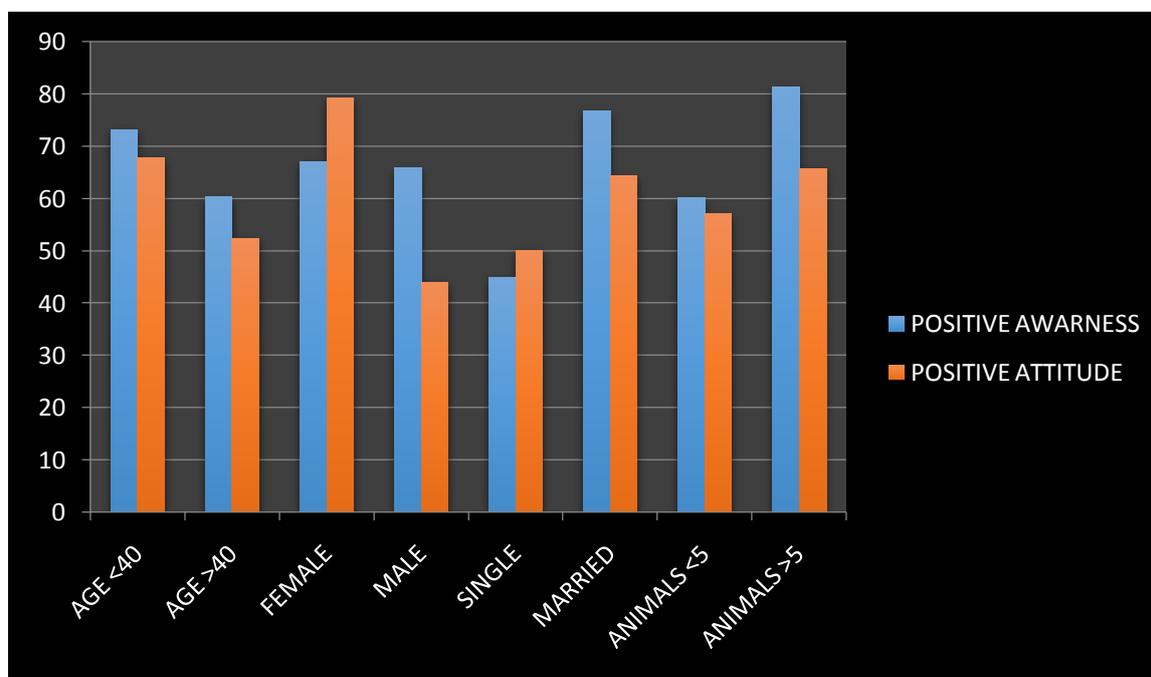
awareness was found to be almost equal in female and male participants [female- 71(66.98% and male- 87(65.90%)). While, positive attitude was found to be more in females [84(79.24%)], as compared to males [58(43.93%)]. (Table 2, Graph 2)

Among the farmers, the single farmers were less in number (78) and they show less positive awareness [35(44.87%)] and attitude [39(50.0%)] regarding zoonotic diseases than married farmers [positive awareness- 123 (76.87%), positive attitude-

103(64.37%)]. Also, the farmers with less than 5 animals had less positive awareness [101(60.11%)] and attitude [96(57.14%)] than those having more than 5 animals [positive awareness- 57(81.42%), positive attitude- 46(65.71%)]. (Table 2, Graph 2)

**Table 2: Analysis of the responses given by the farmers according to their various characteristics**

Characteristics	Number of participants	Positive awareness n (%)	Positive attitude n (%)
Age < 40	112	82 (73.21%)	76 (67.85%)
Age > 40	126	76 (60.31%)	66 (52.38%)
Female	106	71 (66.98%)	84 (79.24%)
Male	132	87 (65.90%)	58 (43.93%)
Single	78	35 (44.87%)	39 (50.0%)
Married	160	123 (76.87%)	103 (64.37%)
Animals <5	168	101 (60.11%)	96 (57.14%)
Animals >5	70	57 (81.42)	46 (65.71%)



**Fig 2: Graph showing analysis of the responses given by the farmers according to their various characteristics**

**DISCUSSION:**

The Indian subcontinent has been identified as one of the four global hot-spots at increased risk for emergence of new infectious diseases (Public Health Foundation of India) [4].

Woolhouse *et al.*; noted that more than 700 human pathogens were considered zoonotic. Zoonotic infections constitute 70% of the community acquired infections. In the development of these diseases, the socio-cultural habits and socio-economic status have important effects. Poor countries are affected more from communicable and infectious diseases of which most

are zoonotic and that the effects are more destructive [1].

People most at risk of being affected by a zoonotic disease are those in close contact with animals or animal products. This particularly includes [6]:

- Veterinarians
- Farmers
- Abattoir workers
- Shearers
- People assisting with animal births
- Pet owners
- Pig hunters

Examples of various zoonotic diseases include [6]:

Bacterial diseases - Anthrax, Brucellosis, Leptospirosis, Q fever, Salmonella, Psittacosis, etc.

Viral -Australian Bat Lyssavirus (ABLV), Hendra virus, (exotic diseases -Ebola virus, Rabies)

Protozoa- Toxoplasmosis, Giardia, Cryptosporidiosis

Fungi- Ringworm

Parasitic- Hydatids, Visceral larval migrans

Livestock holders were mostly not aware of the risk of contracting zoonotic pathogens from consuming contaminated raw milk, meat, and eggs. In addition, proper disposal of infected milk or dairy products, aborted materials, and use of hygienic procedures during milking and milk storage are extremely important steps in Zoonoses. Zoonoses are defined as those diseases and infections naturally transmitted between people and vertebrate animals (WHO, 2005). Zoonoses constitute a diverse group of viral, bacterial, rickettsial, fungal, parasitic, and prion disease with a variety of animal reservoirs, including wild life, livestock, pet animals, and birds [5].

Zoonotic diseases harmful to animal health are not only important because of the economic losses affecting the meat, milk and wool products but also because of their effects on food safety. The control of zoonotic agents is the first condition for safe food [7].

The transmission may occur through direct contact with the animal, through vectors (such as fleas or ticks), or through food or water contamination (James, 2005). Globally, zoonoses are said to account for 60% of all infectious disease pathogens and 75% of all emerging pathogens (WHO, 2004). In both developing and developed countries, a number of new zoonoses have emerged. This might be the result of either newly discovered pathogens or agents that are already known, usually appearing in animal species in which the disease had not previously been detected (Jonathan and Joshua, 2006). Many diseases that affect humans which are new, emerging and re-emerging, were caused by pathogens that originated from animals. Moreover, a number of zoonotic diseases, including rabies, brucellosis, bovine tuberculosis and echinococcosis continue to affect humans and animals in many countries, particularly developing nations [5].

Even though the zoonotic diseases are having greatest importance as per as human health is concerned, most of them are undiagnosed, causing enormous suffering and death of thousands of children and adults annually (WHO, 2006). As zoonotic diseases are present since a long time, a number of factors are

responsible for their existence. These include increase contact between animals and humans and this factor continues to play a major role in their persistence and emergence. Environmental changes due to natural and manmade calamities, customs and traditions followed by different people in various countries, increase in human population, migration of people from one place to another place especially from rural to urban areas and increased movement of animals towards human habitations due to deforestation are some of the factors for spreading of the zoonotic diseases [8].

In the dairy sector, zoonotic pathogens are normally present in dairy animals, raw milk, milk products, meat and the farm environment but are often difficult to diagnose. These zoonoses can be transmitted to humans in several ways that include consumption of infected raw milk and coming in contact with infected dairy animals and products, and infected farm environments. However, most milk-borne zoonoses are mostly acquired through consumption of infected milk. Milk-borne zoonoses are of both public health and economic importance. In addition to causing serious economic losses in dairy cattle production, they pose a major barrier for trade of animals and animal products and this could seriously impair socio-economic progress [9].

Zoonoses are diseases of animal origin that can affect people. The diseases may be caused by bacteria, parasites, protozoa, fungi and viruses [6].

Zoonotic diseases can spread to humans' by [6]:

- Close contact with infected animals including livestock, pets, exhibited animals or wildlife.
- Contact with the saliva, blood, urine or faeces of an infected animal.
- Water or soil that has been contaminated by infected animals.
- Being bitten by an infected tick or mosquito (called a "vector").
- Eating or drinking unpasteurized dairy products, undercooked meat or unwashed fruit and vegetables that are contaminated with faeces from an infected animal.

The perception of the community towards zoonotic diseases plays an important role for the maintenance of life cycle and transmission of these diseases to the different arrays of their hosts. Studying the perception of the community on the risk factors, routes of transmission and life cycle of zoonotic diseases is a crucial step towards the development and implementation of appropriate disease prevention and control strategies [5].

Livestock farmers can get contamination during production, processing, and handling of food products of animal origin. About 68% of workforce in India is in

close contact with domestic animals and their activities, such as working with animals and in their sheds, improper disposal of waste from animal sheds, skinning of infected animals, slaughtering of diseased animals, disposal of infective material from the diseased animals, and poor personal hygiene practices, have been reported to be important risk factors. This low percentage of awareness about zoonotic diseases and lack of awareness about the hygienic practices to be followed to protect themselves make the respondents of this study as a vulnerable group to expose to the zoonotic diseases. Bringing awareness among the public about the threat to them through zoonotic diseases, their modes of transmission, prevention and control measures should be considered as most important to protect them which should be done by the veterinary and human health care professionals [8].

These zoonotic diseases have a direct effect on human and animal health and production, but this may influence the economy of the country by being barriers to trade, increased cost of marketing the product to ensure it is safe for human consumption and the loss of market because of decreased consumer confidence. In spite of its utmost importance, awareness to livestock farmers regarding their needs to be stressed on because due to lack of awareness most of them go undiagnosed and uncontrolled [4].

Even though the government is practicing most disease control schemes including vaccination, organization of animal health camps but preponderance over the issue of improving awareness among the livestock owners could become a milestone in prevention and control of zoonotic diseases [4].

Even though the government is practicing most disease control schemes including vaccination, organization of animal health camps, compensation to livestock owners for infected animals that are culled are not very feasible in most developing countries, mainly because of limited resources. Improving awareness among the livestock owners and proper disease diagnostic techniques could be helpful in prevention and control of zoonotic diseases. Hence an understanding about public awareness and practices of farmers have received much attention now a days could be a useful tool in developing and improving existing control measures [8].

#### CONCLUSION:

Continued education and awareness bringing programs and collaboration between veterinary and human health care professionals were considered to be important to bring awareness among the public about

zoonotic diseases and to combat those diseases. Therefore efforts by both veterinary and human health care professionals should focus on effective ways of improving public knowledge of zoonotic diseases and their transmission, the development of improved herd disease management plans and the establishment of food safety systems.

This study was a preliminary study to determine the knowledge and skill requirements of livestock farmers regarding zoonotic diseases. The knowledge-attitude- practice of the farmers in regards to the zoonotic diseases seem below the desirable levels, thus providing training about the issue may provide beneficial effects.

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