

# Impact of Optimal Health Promotion Intervention Related to Zoonotic Disease

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**Abstract:** Globally, India is the largest milk producer with highest population of cattle i.e., 134 million cows and 124 million buffalos. The Indian subcontinent is one of the four global hot-spots at increased risk for emergence of zoonotic diseases. Health hazards occurring due to lack of awareness about the causes and impact of zoonosis on the public health are significant. Zoonotic Disease had a tremendous impact on the evolution of man specially those culture and society that domesticated and bred animal for food and clothing. Most human are in contact with animals in a way or another. A Zoonotic Disease is a disease or infection that can be transmitted naturally from vertebrate animal to human. More than 60% of human pathogen are Zoonotic in origin that include wide variety of bacteria, Virus, Fungi protozoa, parasites, and other pathogen factor such as climate change, urbanization, animal migration. **Objective:** The main aim of the study is to assess the impact of health promotion intervention related to Zoonotic Disease among Animal handler in urban area Althan, Surat. **Method:** The study involved pre-experimental one group pretest - posttest design. Probability sampling technique was used to draw the 30 animal handlers. **Result:** The mean post-test health promotion score was higher than mean pre-test knowledge score with mean difference of 10.03 and t value 21.88 which was statistically significant and it's revealed that the health promotion intervention was effective. The chi square test shows education has significant relationship with post-test of health promotion. **Conclusion:** Knowledge deficit existed in the animal handler regarding zoonoses. The health promotion intervention was found to be effective in enhancing knowledge regarding zoonoses. There is significant relationship between education with the post-test health promotion intervention.

**Keywords:** Impact, Health Promotion Intervention, Zoonotic Disease, Animal handler

## INTRODUCTION

“The Confluence of human and animal health, along with wildlife, creates new opportunities for the pathogens to emerge and remerge.”

Animals provide many benefits to people. Many people interact with animals in their daily lives, both at home and away from home. Animals provide food, fiber, livelihoods, travel, sport and companionship for people across the globe; however, animals can sometimes carry harmful germs that can spread to people and cause illness – these are known as zoonotic diseases or zoonoses.

Historically zoonotic disease had tremendous impact on the evolution of man specially those culture and society that domesticated and bred animal for food and clothing. Zoonoses are among the most frequent and dreaded risk to which mankind is exposed. Zoonoses occur throughout the world transcending the natural boundaries. Their important effect on global economy and health is well known extending from the international movement of animal and importation of a disease to bans on importation on all animal product and restriction on other international trade practice. <sup>(1)</sup> Our India is an agriculture country. According to World Bank collection of development indicator in India rural population was reported at 65.07% in 2020. Whose main occupation is agriculture and agro-related Occupation. Worldwide India is the largest milk producer with the highest population of cattle. India is world's highest livestock owner at about 537.78 million. <sup>(2)</sup>

Nearly two third of human infection disease and majority of emerging infection disease exerting heavy public health and economic burden to the global community originate from animals. Based on the impact and epidemiological characteristics, these zoonotic diseases have been categorized into the more common endemic zoonoses such as brucellosis, Salmonellosis, and leptospirosis which are responsible for more than 2.2 million human death and 2.4 billion cases of illness annually. Zoonoses and disease recently emerged from animals have been estimated to contribute more than a quarter of the disability –

adjusted life years lost to infectious disease in a low income setting such as a sub - saharan Africa, and less than 1 % in high income countries. The attention given to zoonotic disease has a however focused more on an emerging zoonoses that pose global economic and health threat and less on the endemic zoonotic disease which tend to occur among population. <sup>(3)</sup>

Now a day zoonoses diseases are public health problem in India. According to an international livestock research institute study found that globally 13 diseases called zoonoses are responsible for 2.4 billion case of human diseases and 2.2 million human death every year. These diseases may be transmitted to the farmer with livestock during processing, production and handling of a food products of animal origin. <sup>(4)</sup>

Developing countries such as India suffer from the triple burden of diseases, the unfinished work of communicable diseases, the non-communicable diseases, and emergence of new pathogens and overstretched health infrastructure. In addition, the role of global warming and climate change is affecting the biodiversity and distribution of animals resulting in emergence of zoonoses. <sup>(5)</sup>

India has around 20,000 rabies death per year. In India account for 36% of all rabies death globally. In India, the major public health zoonotic diseases are rabies, brucellosis, toxoplasmosis, cysticercosis, plague, leptospirosis, nipah, Scrub typhus, Japanese encephalitis, Crimean-congo hemorrhagic. <sup>(1)</sup>

In 1994, plague in India was outbreak in bubonic and pneumonic plague in south central and western India. from 26th august, 1994 to 18th October, 1994 639 suspected case and 56 deaths were reported from the 5 affected Indian state with along union territory. In Gujarat outbreak of plague occur in Surat city. The high incidence rate of brucellosis was seen in country as Kenya (203.07 cases per 1 lakh), Yemen (89.96), Syria (47.26), in India human brucellosis prevalence as variation from the lowest 0.8%, in Kashmir to 26.66% in Ludhiana. Brucellosis is endemic in livestock in the Indian subcontinent including India it is an established endemic disease in cattle population with prevalence of 1.8% in 19 of 23 state in Indian subcontinent (1998) and 24.3% in india (2005). Outbreak of leptospirosis have been increasing in India for the past three decade. The positivity rate for the disease is a notable in southern part of India at 25.6%

followed by 8.3%, 3.5%, 3.1% and 3.3% in northern, western, eastern and central India respectively. <sup>(8)</sup>

Zoonotic pathogens can spread to human through any contact point with domestic agriculture or wild animal. Market selling the meat or by product of wild animal are particularly high risk due to the large number of new or undocumented pathogen known to exist in sum wild animal population. Agriculture worker in area with a high use of antibiotic for farm animal may be at increased risk of pathogen resistant to current antimicrobial drugs. People living adjacent to wilderness area or in semi-urban area with higher number of wild animals are at a risk of disease from animal such as rat, foxes or raccoons. Urbanization in the destruction of natural habits increased the risk of zoonotic disease by increasing contact between human and wild animal. <sup>(6)</sup>

WHO reported that zoonotic diseases have great importance from the viewpoint of public health; most of the diseases cause enormous sufferings and increases annual mortality of thousands of children and adult. Environmental alteration due to natural and manmade calamities, increase in human population, deforestation causes migration of rural people to urban habitats, and increasing susceptibility of zoonotic diseases. Zoonotic diseases of the developing countries have been associated with farming patterns, educational background, food habits, presence or absence of reservoir population, and awareness about disease control program. Babu et al. reported that 28.06% peoples are aware about zoonotic diseases in Andra Pradesh, India. They also mentioned that employee of veterinary and medical departments is more aware about different types of zoonotic diseases as compared with other professionals. Hygienic management followed by farmer is very negligible which increase the susceptibility of zoonotic diseases. Girma et al. found that peoples with low education have limited consciousness on public health important diseases which are transmitted from the animals.

Wildlife is known to be common reservoirs for some infectious diseases transmissible to humans It is estimated that more than 60% of infectious diseases in humans are of zoonotic origin causing a billion cases of illness and millions of deaths every year According to the International Union for the Conservation of Nature (2005), human-wildlife interaction is increasing due to human choices like land use or the need for ecosystem services that proximity to natural

resources provides. The burden of infectious diseases is noticeably high in Sub-Saharan Africa. In addition, poor communities are disproportionately affected by climate and environmental changes that further drive the emergence of infectious disease

In microbial diseases of human, 61% are zoonotic and 13% of these infections are known as emerging and reemerging diseases. Daszak et al. reported that 75% of zoonotic infection derived from emerging infectious disease. A number of determinants are responsible for zoonotic infection; the main cause is coming into close contact between animals and humans. The vast majority of the animals (domestic, companion, and pets) acts as carriers and reservoir of many zoonotic infections. It has been reported that peoples of developing countries are living very close with animals where livestock usually provide draught power, transportation, fuel, and clothing.

#### STATEMENT OF THE STUDY

Assessing the Impact of Optimal Health Promotion Intervention Related to Zoonotic Disease among Animal Handler in Urban Area Althan, Surat.

#### MATERIALS AND METHODS

The quantitative research approach with pre-experimental research design was adopted for the study. The study was carried out in urban area, Althan, Surat. The study was conducted on 30 animal handlers, who lives in urban area of Althan, Surat. The animal handlers were selected by using simple random technique. Structured questionnaire with promotion of health intervention on zoonotic disease was administered among animal handlers after approval from health department of Althan, Surat.

There were three parts of tools, in which the first part was included demographic details such as Age, Gender, Religion, Education Level, Marital Status, Type of Family, Family Income, Cattle vaccination status. The second part tool was structured knowledge questionnaire which consisted of 25 questions regarding knowledge on zoonotic diseases. The tools were designed after thorough review of text and previous published study and then validated from experts in the field of Community Health and Medical Surgical Nursing. The researcher explained aims and methods of research to animal handlers before asked

consent and then knowledge questionnaire on zoonotic disease was administered; furthermore, health promotion intervention was administered, which was followed by posttest. The descriptive statics (Frequency, Percentage, Mean) and paired t test and Chi square test were used to analyze the data.

#### RESULTS

1. As per the age group of animal handlers, the majority of them belongs to 45-50 years (36.67%), 25-45 (33.33%), 10-20 (13.33%) and above 60 (16.67%). There is no significant association found between the level of zoonotic diseases knowledge related to animal handlers with their age in pretest and posttest.
2. As regards to gender of animal handlers, 56.67% were females and 43.33% were males. There is no significant association found between the level of zoonotic diseases knowledge related to animal handlers with their gender in pretest and posttest.
3. Regarding the religion of animal handlers, the majority of them were Hindu 76.67 % and remaining 23.33 % were Muslim. There is no significant association found between the level of zoonotic diseases knowledge related to animal handlers with their religion in pretest and posttest.
4. According to Education status of animal handlers, the 20% belongs to illiterate category where as 26.67% and 33.3% had primary and secondary education respectively; moreover 20 % had above higher secondary education. There is no significant association found between the level of zoonotic diseases knowledge related to animal handlers with their education in pretest; however, it is significantly associated in posttest.
5. As per cattle vaccination records, majority of cattles 26 (86.67%) were vaccinated

#### FINDINGS RELATED TO ANIMAL HANDLERS AWARENESS REGARDING ZOOONOTIC DISEASES

The study shows that among 30 animal handlers, 86.67 % had poor and not a single had a good knowledge; however, after health promotion intervention 23.33% and 76.67% had good and average knowledge respectively and no one remain in poor category.

TABLE NO 1: Animal handlers knowledge score according to Pre and Post Health Promotion (n=30)

SCORE	GRADE	PRE-TEST		POST-TEST	
		FREQUENCY	PERCENTAGE	FREQUENCY	PERCENTAGE
>20	Good	0	0	7	23.33
10-20	Average	4	13.33	23	76.67
<10	Poor	26	86.67	0	0

There were less than 25% knowledge scores in each area among animal handlers before health promotion which was increased up to 40% to 50 %in all categories. The introduction area pre-test mean score is 0.73 (24.33%) and the post-test mean score is 2.86 (95.33%) with actual gain of 71%. For the Plague pre-test mean score is 1.63 (40.75%) and the post-test mean score is 3.3 (82.5%) with actual gain of 41.75%.

For the Brucellosis pre-test mean score is 1.7 (24.28%) and the post-test mean score is 3.96 (56.57%) with actual gain of 32.29%. For the Leptospirosis pre-test mean score is 0.8 (16%) and the post-test mean score is 1.93 (38.6%) with actual gain of 22.6%. For the Rabies pre-test mean score is 1.63(27.16%) and the post-test mean score is 4.6 (76.66%) with the actual gain of 49.5%.

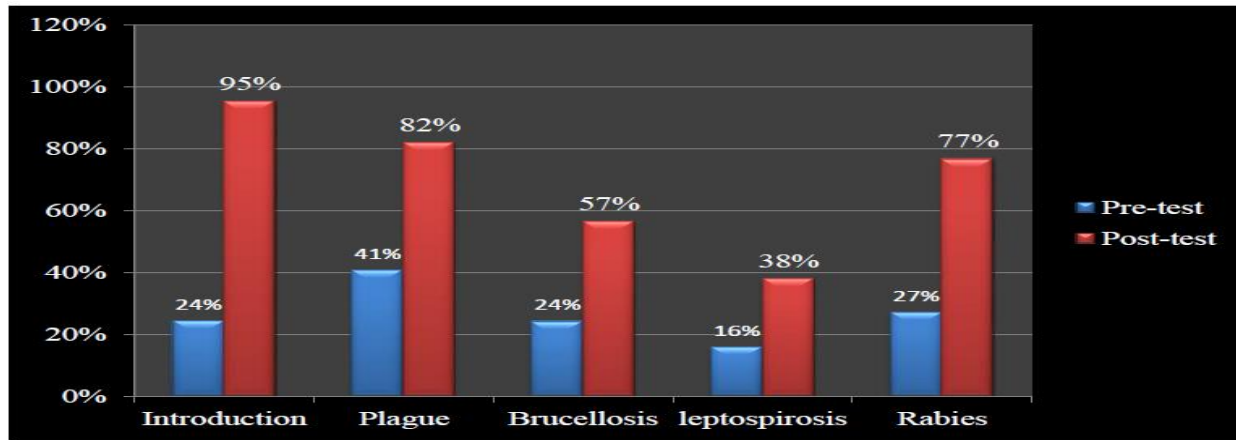


FIGURE:1 Bar graph shows area wise knowledge score of animal handlers on zoonotic disease.

TABLE NO: 2 “t” Test for health promotion Intervention among Animal handlers

Group	Mean Score		Mean Difference	SD		T Calculated value	Tabulated Value	Level of Significance
	Pretest	Post-test		Pretest	Post-test			
Animal Handlers	6.5	16.53	10.03	2.29	3.13	21.8786	3.66	0.001

The mean of pre-test and post-test were 6.5 and 16.53 respectively. The mean difference of pre-test and post-test is 10.03, The t test value is 21.878 which shows the effectiveness of health promotion intervention found to be statistically effective.

### DISCUSSION

The present study shows that awareness regarding zoonotic diseases and its impact of causing infection was poor before intervention; however, awareness of zoonotic infection is high in employee of livestock

department was identified through a study conducted by Syidul Islam and Md. Selim Ahmed at Bangladesh. A study conducted by Jaspal Singh Hundal, Simrinder Singh Sodhi , at el on awareness, knowledge, and risks of zoonotic diseases among livestock farmers in Punjab shown that 69.2% respondents belonged to low to medium knowledge level categories, whereas 30.8% respondents had high knowledge ( $p < 0.05$ ) regarding different aspects of zoonotic disease; which was similar to present study that 86.67% had poor knowledge regarding zoonotic diseases and its preventive measures.

## CONCLUSION

The study shows that knowledge regarding zoonotic diseases was deficient among animal handlers. The health promotion intervention was administered and it was found to be effective in enhancing the knowledge regarding zoonotic disease among animal handlers. The health promotion intervention had great potential for acceleration the knowledge regarding Zoonotic Disease. There is no significant association found between selected demographic variables and pretest and posttest health promotion except posttest with education variables. It will be recommended that the study can conduct by using other strategies and along with larger sample size for better visualization and generalization.

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