

## Original Research Article

## A Socio-Demographic Study on Extent of Knowledge, Awareness, Attitude and Risks of Zoonotic Diseases among Livestock Owners in Singur, West Bengal

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**Abstract:** Zoonotic diseases are naturally transmitted between vertebrate animals and human beings. Lack of awareness and knowledge about the zoonotic diseases reported to be associated with the occurrence of zoonotic diseases in humans. Hence this study was done useful to assess the extent of knowledge, awareness, attitude and risks of zoonotic diseases among livestock owners. Singur block in the state was purposively selected for the study. From the selected block, a list of villages with animals was identified. Ten villages were randomly selected. From each selected village, 15 farmers were selected randomly, thus making a total of 150 farmers. Each farmer was interviewed with a questionnaire containing 49 questions which included both open and close ended questions on various aspects of zoonotic diseases. The data was collected and analyzed by using chi-square test. The present survey analysis represents that most of the respondents belonging to age group 41-60, had their qualification up to primary (58%) and herd size up to 3 animals. About 31% of the households had a graduate degree. About 65.33% of the farmers keep their animal sheds clean. About 35% of respondents were ignorant about cleaning the dog bitten wound. Only 12.8% of the respondents knew that diseases can be transmitted between animals and humans. Regarding the knowledge of zoonotic diseases like tuberculosis, brucellosis and bird flu, only 3.6% were aware of tuberculosis, 3.8% aware of brucellosis and 6.6% were aware of bird flu. From this study, it was concluded that education had significant effect on the knowledge level and awareness of farmers toward zoonotic diseases. The present study highlights the lacunae among the awareness levels of farmers and thus public health education regarding zoonotic diseases is very much needed.

**Keywords:** Zoonosis, Risk, Awareness, Knowledge, Farmers.

### INTRODUCTION

Zoonotic diseases are usually transmitted from vertebrate animals to human beings (WHO.2010). Approximately, 60% of all microbial agents of human beings are commonly shared with other animals. Emerging and re-emerging zoonotic diseases have a potentially dangerous impact on human health, and have caught worldwide attention. Due to climatic changes, the incidence of emerging and re-emerging diseases has increased greatly (WHO. 2010). Zoonotic diseases have a great impact on livelihood of livestock farmers by affecting their health and reducing the quantity and quality of animal products, thereby causing huge economic losses. There is consequent impairment of economy and loss of livestock product market because of decreased consumer confidence (Awosanya,

E. J., & Akande, H. O. 2015). Lack of awareness and knowledge about the zoonotic diseases is linked with the occurrence of zoonotic diseases in humans. An extensive programme was implemented by WHO in controlling rabies in India. Due to this programme, economic loss due to rabies in India has drastically come down. If a similar type of programme is implemented for diseases like leptospirosis and brucellosis, economic losses caused by those diseases in terms of human health and animal health can also be minimised. To implement such programme understanding about public knowledge, awareness, and animal husbandry practices could be a useful tool in implementing a disease awareness and control programme. Such studies are also rare in our country.

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Hence, this study was conducted to assess the extent of knowledge, awareness, attitude and risks of zoonotic diseases among livestock owners in Singur region of West Bengal.

**MATERIALS AND METHODS**

A sample size of 150 livestock owners were randomly selected from various villages in and around singur region in a time span of 1 month. Singur block was purposively selected for the study. From the selected block, a list of villages with animals was identified. Ten villages were randomly selected for the study. From each selected village, 15 farmers were selected randomly, thus making a total of 150 farmers. A total of 49 questions were framed to assess the source and transmission of infection to the farmers and to test their knowledge and awareness about zoonotic diseases. Each farmer was interviewed with a questionnaire containing both open and close ended questions on various aspects of zoonotic diseases. The data was collected and analyzed using chi-square test to assess the relationship between education level and zoonotic disease awareness, risk of zoonotic diseases and its independent variables.

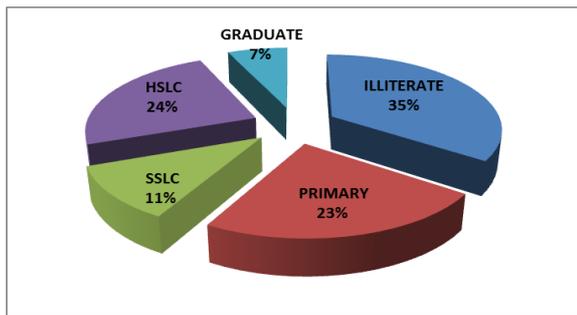
**Statistical method:**

Percentage values were calculated, and other statistical analyses were done by Chi-square test.

**RESULTS:**

**Education and Socio-economic status of the live stock farmers:-**

Based on the study conducted around Singur, it was found that majority of farmers involved in livestock rearing are illiterates (35%).



**Figure1-Education qualification of the respondents (farmers)**

- Age:-** The present study analysis represents that most of the respondents belong to the age group of 41-60years (48%) (Table-1).

**Table-1: Respondents' age**

S.No	Age	Frequency (%)
1.	<25	12(8%)
2.	26-40	36(24%)
3.	41-60	72(48%)
4.	>60	30(20%)
	<b>Total</b>	<b>150(100%)</b>

- Education:-** About 30.68% of respondents' households having a graduate which in turn indicates easy accessibility to higher level of education is present in rural population of Singur.

**Table-2: Highest Education in the family members**

S.No	Education	Frequency (%)
1.	Illiterate	12(8%)
2.	Primary	30(20%)
3.	SSLC	22(14.66%)
4.	HSLC	40(26.66%)
5.	Graduate &above	46(30.68%)
	<b>Total</b>	<b>150(100%)</b>

- Average monthly income:-**

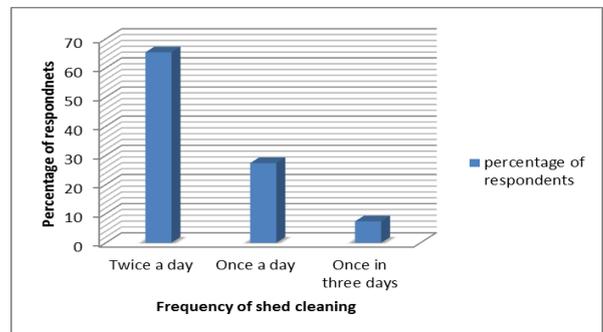
The present investigation reveals that most of the respondents are small scale farmers.

**Table-3: Average monthly income of the respondents**

S.No	Income per month (in INR)	Frequency (%)
1.	<5000	74(49.34%)
2.	>5000	76(50.64%)
	<b>Total</b>	<b>150(100%)</b>

- Assessment of Knowledge, awareness and risk factors associated with animal management towards zoonotic diseases:-**

About 65.33% farmers were keeping their animal shed clean, implicating their traditional way of maintaining the animals.



**Figure-2 Frequency of shed cleaning**

Majority of the respondents (44.66%) suggested that for dog-bitten wound, immediate action was to be taken by cleaning the wound with soap. But still 35.34% of the respondents were ignorant about cleaning the dog-bitten wound.

**Table-4 First-aid proposed by respondents for a dog-bitten wound**

S.No	Method of first-aid	Frequency (%)
1.	Wash with water	30(20)
2.	Wash with soap	67(44.66)
3.	No washing	53(35.34)
	<b>Total</b>	<b>150(100)</b>

As per the awareness toward zoonoses is concerned, only 12.8% of respondents knew that diseases in animals can be transmitted to humans. About 3.8%, 3.6%, and 22.4% of respondents knew about the zoonotic potential of diseases like brucellosis, TB, and avian flu, respectively. Among 15

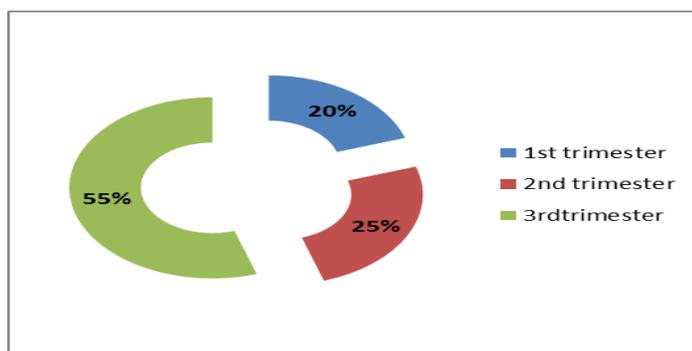
respondents who own dogs, only 33.3% were doing proper deworming. Calf hood vaccination against brucellosis was known only to 1.3 % of the respondents. (Table-5)

**Table-5: Awareness about zoonotic diseases by respondents of Singur region**

S.No	Facts known/Activity done	Frequency (%)
1.	Diseases can transmit from animals to humans	19(12.8)
2.	Brucellosis known	6(3.8)
3.	Wash with soap on dog bitten wound	67(44.6)
4.	Cattle can get Tuberculosis	5(3.6)
5.	TB from livestock to humans	5(3.6)
6.	TB from humans to livestock	0(0)
7.	Testing of livestock for TB	0(0)
8.	Vaccination for Brucellosis	2(1.3)
9.	Deworming of pet dogs among dog owners	5(33.3)
10.	Avian flu from poultry to humans	10(6.6)

**• Occurrence of abortion:-**

In this study, the facts were relieved that in about 30% of the respondent’s farm had an incidence of abortion. Among them, 55%, 25% and 20% of them noted abortions at 3<sup>rd</sup>, 2<sup>nd</sup> and 1<sup>st</sup> trimester of gestation respectively



**Fig. 3: Occurrence of abortion in the livestock's and the trimester of abortion**

**Relationship between different variables analyzed by Chi-square test**

Different independent variables were analyzed by chi-square test and statistical significance was represented in Table-5&6.

**Table-6: Relationship between family income of respondents and disposal of carcass**

S.No	Variable 1	Variable 2			p value
	Income of respondents	Method of disposal of carcass			*0.013963
		Proper disposal	Improper disposal	Total	
	>5000	44	32	76	*Significant at(p≤0.05)
	<5000	28	46	74	
	Total	72	78	150	

**Table-7: Relationship between education level of respondents and treatment of dog bitten animals**

S.No	Variable 1	Variable 2			P value
1.	Education level	Treatment given	Treatment not given	Total	**0.09645 **Significant at (p≤0.1)
		Illiterate,Primary,SSLC	56	104	
		HSLC&Above	28	46	
	Total	76	74	150	

Our analyses showed that there was a significant relationship in the educational level of respondents and treatment of dog bitten animal,

furthermore our analysis showed there was significance in family income of respondents and disposal of carcass.

## DISCUSSION

The interface among people, animal and the surrounding environment is very close in many developing and developed countries, where animals act as a companion and provide draught power, transportation, clothing, fuel and source of protein in the form of milk, meat and eggs. In the absence of proper care and lack of awareness, this linkage can lead to a serious risk to public health with huge economic penalties (WHO. 2010). Studying the community socioeconomic status, education and perception of the community on various zoonotic diseases and its risk is a crucial step toward the development and implementation of suitable disease prevention and control strategies.

Currently, there is no documented evidence available on the awareness of zoonoses among the rural communities in the singur region. Hence, this study was undertaken to assess the awareness on zoonotic diseases among livestock farmers.

As for the awareness toward zoonoses is concerned, only 12.8% of respondents knew that diseases in animals can be transmitted to humans. About 3.8%, 3.6%, and 6.6% of respondents knew about the zoonotic potential of diseases such as brucellosis, TB, and avian flu, respectively. This low level of knowledge and awareness on zoonoses is likely to expose livestock farmers to increased risk of zoonotic diseases.

On the other hand in this study, awareness about rabies was high and 48% of the respondent had better knowledge about rabies and its management and our analysis showed significance in educational level of respondents and treatment of dog bitten animals. Our present findings are in agreement with another researcher who also has reported the similar findings (Awosanya, E. J., & Akande, H. O. 2015; Mosalagae, D. *et al.*, 2011).

Brucellosis is a very important zoonotic disease and one of the important causative agents of abortion in livestock and is a highly infectious zoonotic disease. In Brucellosis, the classical signs are abortion in the 3<sup>rd</sup> trimester of gestation and incidence of retained placenta (Awosanya, E. J., & Akande, H. O. 2015; Ananthnarayan, R., & Paniker, J. 2013). In this study, about 30% of the respondents' farm had an incidence of abortion. Among them, 20%, 25% and 55% of them noted abortions at 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> trimester of gestation, respectively. However, only 3.8% of the respondent knows about brucellosis and only 1.3 % of the respondent knows about vaccination against brucellosis. This may be due to lack of awareness against brucellosis. However, many respondents reported 3<sup>rd</sup> trimester abortion in their cattle and hence awareness of brucellosis is a need of an hour for control

of highly potential zoonotic diseases like brucellosis, knowledge about calf hood vaccination must be initiated to the livestock farmers.

In this study, level of education in the family member was higher when compared to the level of education in the persons who is carrying out farming practices (Figure-1 and Table-2). Hence if the educated family member also involves themselves in the farming practices, implementation of zoonotic awareness and control programs will be effective and easier.

## CONCLUSION

Lack of awareness about the zoonotic diseases in the present investigation was due to poor communication between veterinarian and human health-care professionals and lack of involvement of educated family members in farming activities. Involvement of educated family members in farming practices can solve this issue. Further creation of zoonotic disease awareness among livestock farmers is of utmost important. Proper disposal of animal waste, good hygienic practices, are extremely important steps in successful control of zoonotic diseases.

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## REFERENCES

1. World Health Organization. (2010). Managing zoonotic public health risks at the human – Animal-ecosystem interface. Strong inter-sectoral partnerships in health. Food Saf. Zoonoses. [Accessed on 04-05-16]. Available from: <http://www.who.int/foodsafety> .
2. Awosanya, E. J., & Akande, H. O. (2015). Animal health care seeking behavior of pets or livestock owners and knowledge and awareness on zoonoses in a university community. *Veterinary world*, 8(7), 841.
3. Mosalagae, D., Pfukenyi, D. M., & Matope, G. (2011). Milk producers' awareness of milk-borne zoonoses in selected smallholder and commercial dairy farms of Zimbabwe. *Tropical animal health and production*, 43(3), 733-739.
4. Ananthnarayan, R., & Paniker, J. (2013). *Brucella. Textbook of Microbiology. 9th ed. University Press, Hyderabad. 340-343.*
5. World Health Organisation. Zoonoses. 2015. Available from: <http://www.who.int/topics/zoonoses/en/>

6. WHO.(2002). Future trends in Veterinary Public Health Technical 907. Geneva: Report of a WHO Study Group, 1–7.
7. World Health Organisation. (2006). The Control of Neglected Zoonotic Diseases: A Route to Poverty Alleviation. Geneva Report of a Joint WHO/DFID-AHP Meeting with the Participation of FAO and OIE, Geneva, 20-21.
8. Woolhouse, M. E., & Gowtage-Sequeria, S. (2005). Host range and emerging and reemerging pathogens. *Emerging infectious diseases*, 11(12), 1842.