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Knowledge, Attitude and Practice of Brucellosis among Farmers Rearing Cattle in Belagavi Taluka - A One Year Cross-sectional Study

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Abstract

Introduction: Brucellosis is a zoonotic disease which is almost invariably transmitted by direct or indirect contact with infected animals or their products. It is also known as "Malta fever", It is an important human disease in many parts of the world especially in the south and central Asia, Mediterranean countries of Europe, north and east Africa, and America and yet it is often unrecognized and frequently goes unreported. More than 500,000 new cases occur annually with an uneven global distribution. In India, bovine Brucellosis is widespread and in recent time it becomes more prevalent, perhaps, due to increased trade and rapid movement of livestock. Epidemiological evidence reveals that, in India, Brucellosis is recorded in almost all states but the scenario differs between states and is present in different species of animals including cattle, goats, buffalo, yaks, camels, horses, and pig. **Objectives:** To assess the knowledge, Attitude and practice of Brucellosis among Farmers Rearing Cattle. **Materials and Methods:** A cross-sectional study conducted in Belagavi Taluka among 400 farmers rearing cattle's. Data was collected using predesigned pretested structured questionnaire after taking written informed consent. Based on the objective the data was analyzed in SPSS version-20 and expressed as percentage. **Results:** Majority 93.8% farmers had poor knowledge, 4.4% had average knowledge and 1.8% had good knowledge about brucellosis. 99.5% had positive attitude about brucellosis and 97.5% farmers' had bad practice and only 2.5% had good practice in rearing cattle. **Conclusion:** Study revealed that majority of farmer's had poor knowledge and bad practice but had positive attitude about brucellosis.

Keywords: Knowledge, Attitude, Practice, Brucellosis, Farmers.

INTRODUCTION

Brucellosis is a zoonotic disease which is almost invariably transmitted by direct or indirect contact with infected animals or their products. It is also known as "Malta fever", "Mediterranean fever" or "Undulant fever". It affects people of all age groups and of both sexes. It is an important human disease in many parts of the world especially in the South and Central Asia, Mediterranean countries of Europe, North and East Africa, the Middle East, Central and South America and yet it is often unrecognized and frequently goes unreported.[1]

More than 500,000 new cases occur annually but with an uneven global distribution. In India, bovine Brucellosis is widespread and in recent time it becomes more prevalent, perhaps, due to increased trade and rapid movement of livestock. Its prevalence varied widely across the livestock and human population in different states of India.[2]

Epidemiological evidence reveals that, in India, Brucellosis is recorded in almost all states but the scenario differs between states and is present in different species of mammalian farm animals including cattle, goats, buffalo, yaks, camels, horses, and pig. Consumption of unpasteurized dairy products, contaminated food, and occupational contact are the major risks of infection to man. Reports in a few countries show that contact with infected materials such as aborted fetuses, placentas, urine, manure, carcass, and salvaged animals cause human Brucellosis in 60%–70% of cases. In general, infection by contact is found among veterinarians, abattoir workers, farmers, animal handlers, and others who work with animals and their products. The cases reported are only the "tip of an iceberg" even in endemic areas.[3,4]

MATERIALS AND METHODS

Study design, setting and participants

The present cross-sectional study was undertaken among farmers rearing cattle in Belagavi taluka.

Sample size

Sample size was calculated taking 50% prevalence and relative error of 5 with $4pq/d^2$, the present study was undertaken for a period of 10 months from January 2017 to December 2017.

Ethical Issues

Ethical clearance was obtained from JNMC Institutional Ethics Committee on Human Subject Research, J. N. Medical College, Belagavi and informed consent was obtained from the study participants.

Data analysis

Data was analyzed by using SPSS software v.20.Qualitative variables are summarized in percentage.

RESULTS

In this study out of 400 study participants maximum were males 355(88.8%) and minimum 45 (11.3%) were female. 89(22.3) of participants were in the age group of 41 to 50 years. 316(79.0%) were married and 84(21.0%) were unmarried. 391(97.8%) were Hindus, followed by 8(2.0%) Muslims, and 1(0.3%) belonged to christen. 71(17.8%) participants are illiterate, 97(24.3%) studied primary school education, 147 (36.8%) studied secondary school education, 65(16.3%) had completed diploma/Pre-University education, 18(4.5%) did Under-graduation (UG), and 2(0.5%) had completed Post graduates' degree. 205(51.3%) belong to lower middle class, followed by 17(4.3%) upper middle class, 99(24.8%) middle class, 79(19.8%) to lower class.

Among 400 study participants, majority of them had never heard about brucellosis 237(59.3%). Whereas 163(40.8%) of them had heard about brucellosis'. *N*=241(60.3%) had not received information about brucellosis. were as 95(23.8%) had received information from relatives or friends, 60(15.0%) from veterinarian, 4(1.0) from television. A majority *n*=264(66.0%) did not know that which animal species can be infected. Were as 94(23.5%) knew that cattle, sheep and goat could be infected and 42(10.5%) knew that all mammals could be infected. A majority *n*=311(77.8%) did not know that human could become infected and 26(6.5%) knew that human could be infected. A majority *n*=385(94.5%) did not know about the symptoms of brucellosis in human. A majority *n*=378(94.5%) did not know that cattle could be vaccinated against the disease. The majority *n*=324(81.0%) of them did not know that brucellosis can be transmitted from animal to humans. A majority 394(98.5%) did not know about the cause of brucellosis.

Regarding attitude of respondents, in this study, majority 305(76.3%) of participants agreed that brucellosis cause huge economic loss. More than half 207(51.8%) had neutral attitude that brucellosis is one of the commonest diseases. Less than three quarter 295(73.8%) had neutral attitude that brucellosis spread from bovine to sheep and goat. Similarly, 298(74.4%) had neutral attitude that brucellosis spread from sheep to goat to bovine. Less than half participants 192(48%) approved that control programme on brucellosis has been implemented will be successful. Whereas 167(41.8%) were of neutral attitude. Majority 321(80.3%) disagree that infected cattle should be given to slaughter house. Majority 336(84%) agree that tagging helps in tracking disease. More than half 211(52.8%) were of neutral about their readiness to pay for vaccination, whereas one third 132(33%) of participants were agreed to pay for vaccination. Less than two third 259(64.8%) where of neutral attitude that livestock insured farmer come forward than non-insured farmer for vaccination.

In present study, respondents who sell unpasteurized milk or milk product to consumers were 98(24.5%) and 302(75.5%) were not in practice of selling any unpasteurized milk or milk product to consumers. A majority of respondents will not consume unpasteurized milk 293(73.3). Were as 107(26.8) consume unpasteurized milk or milk products. *N*=332(83.0%) majority were male's those who Assist during calving. Were as 21(5.3%) female, 38(9.5%) both female and male, 9(2.3%) veterinarians. A majority of 386(96.50%) were bury the Dead cattle foetus. Were as 4(1.0%) Call veterinarian,10(2.5) Burn. A majority 365(91.3%) did not use protection dealing with cows' abortion, were as 25(6.3%) Use gloves, 3(0.8%) Wash hands, 7(1.8%) Always call veterinarians.

DISCUSSION

Brucellosis is serious public health issue in many developing nations. The objective of the study was to assess the knowledge, attitude and practice

Table 1: Demographic characteristics of farmers rearing cattle's in Belagavi Taluka. (*n*=400).

Variables	Category	Frequency N (%)
Gender	Male Female	355(88.8) 45(11.3)
Age (in years)	≤20 21 to 30 31 to 40 41 to 50 51 to 60 61 to 70 >70	14(3.5) 44(11.0) 44(11.0) 89(22.3) 66(16.5) 65(16.3) 78(19.5)
Marital status	Married Unmarried	316(79.0) 84(21.0)
Religion	Hindu Muslim Christen	391(97.8) 8(2.0) 1(0.3)
Education	Illiterate Primary school Secondary PUC/diploma Graduate Post graduate	71(17.8) 97(24.3) 147(36.8) 65(16.3) 18(4.5) 2(0.5)
Family income per month	Upper middle class Middle class Lower middle class Lower class	17(4.3) 99(24.8) 205(51.3) 79(19.8)

Table 2: Knowledge about brucellosis.

Variables	Category	Frequency N (%)
About brucellosis.	Yes No	163 (40.8) 237(59.3)
Source of information.	Relatives/friends Veterinarian Television Don't know	95(23.8) 60(15.0) 4(1.0) 241(60.3)
Animal species can be infected.	Cattle /sheep/goat All mammals Don't know	94(23.5) 42(10.5) 264(66.0)
Can human become infected.	Yes No Don't know	26(6.5) 63(15.8) 311(77.8)
symptoms in human.	Fever and arthritis Fatigue Don't know	11(2.8) 4(1.0) 385(96.3)
Existence of Animal vaccination.	Yes No	22(5.5) 378(94.5)
Mode of transmission Animal to animal.	Yes No Don't know	31(7.8) 50(12.5) 319(79.8)
Mode of transmission Animal to human.	Yes No Don't know	21(5.3) 55(13.8) 324(81.0)
Causative organism of brucellosis.	Bacteria Fungi Don't know	3(0.8) 3(0.8) 394(98.5)

Table 3: Attitude of farmers rearing cattle's in Belagavi Taluka towards brucellosis.

Variables	Category	Frequency N (%)
Brucellosis causes huge economic loss.	Agree Neutral Disagree	305(76.3) 85(21.3) 10(2.5)
Brucellosis is one of the commonest diseases.	Agree Neutral Disagree	172(43.0) 201(51.8) 20(5.0)
Brucellosis spread from Bovine to sheep and goat.	Agree Neutral Disagree	46(11.5) 295(73.8) 59(14.8)
Brucellosis Sheep and goat to bovine.	Agree Neutral Disagree	42(10.5) 298(74.5) 60(15.0)
Brucellosis Control programme will be successful.	Agree Neutral Disagree	192(48.0) 167(41.8) 42(10.3)
Can infected cattle be given to slaughter house.	Agree Neutral Disagree	38(9.5) 41(10.3) 321(80.3)
Tagging Help in tracking the disease.	Agree Neutral Disagree	336(84.0) 53(13.3) 11(2.8)
Ready to pay for Vaccination if it is priced less.	Agree Neutral Disagree	132(33.0) 211(52.8) 57(14.3)
Livestock insured farmer come forward than non insured farmer for vaccination.	Agree Neutral Disagree	11(2.8) 259(64.8) 130(32.5)

Table 4: Practices towards brucellosis.

Variables	Category	Frequency N (%)
Selling of unpasteurized milk or milk products.	Yes No	98(24.5) 302(75.5)
Do the Respondent consume unpasteurized milk or milk products?	Yes No	107(26.8) 293(73.3)
Household assist during calving.	Female Male Female and male Veterinarian	21(5.3) 332(83.0) 38(9.5) 9(2.3)
Dead cattle foetus.	Bury Call veterinarian Burn	386(96.50) 4(1.0) 10(2.5)
Use protection dealing with cattle having an abortion or with aborted materials.	Use gloves Wash hands Always call veterinarians No	25(6.3) 3(0.8) 7(1.8) 365(91.3)
Action taken by Respondent to assure the health of new cattle.	No Use more experienced people in village Use veterinary inspection	77(19.3) 319(79.8) 4(1.0)
Respondent discuss about animal health issues.	Family members Friends neighbour veterinarian	55(13.8) 13(3.3) 2(0.5) 330(82.5)
What respondent do if cattle is sick.	Seek veterinary Treat Slaughter Don't know	379(94.8) 17(4.3) 1(0.3) 3(0.8)

of brucellosis among farmers rearing cattle. A total 400 participants were enrolled in the present study and majority of them were males.

In the present study out of 400 participants enrolled, 89(22.3%) were in the age group of 41 to 50 years followed by 78(19.5%) in the age group of 71 years and above, whereas 14(3.5%) farmers were in the age group of 20 years. A study conducted among pastoral community in Kenya among 120 participants who were in close contact with livestock. The median age of study participants was 16 years with 102(85.0%) aged below 35 years.[7] A study was conducted in Davangere among veterinarians. it showed that brucellosis is more common among the age group of 31-40 years followed by persons more than 41 years.[4]

In the present study out of 400 participants enrolled, majority 355(88.7%) were male and 45(11.3%) were female. Similar study was conducted among small scale dairy farmer in an urban and peri-urban areas of Tajikistan among 441 farmers, showed that 342(78.0%) were female whereas 99(22.0%) were male.[5]

In the Present study out of 400 participants, majority 316 (79.0%) were married and 84(21.0%) were unmarried. A study was conducted among farmers in turkey wherein 111(73.5%) were married and followed by 26(17.2%) single, 12(7.9%) widow, 2(1.3%) divorced.[6]

Among 400 study participants in the present study, majority 237(59.3%) of them had never heard about brucellosis, whereas 163(40.8%) of were aware about brucellosis. A study was conducted in the pastoral communities of Uganda. out of 371 participants majority 370(99.3%) had ever heard about brucellosis.[7]

In the present study out of 400 participants, majority 311(77.8%) of respondents did not knew that human could become infected and only 26(6.5%) know that human could be infected. Similar study was conducted among small scale dairy farmer in an urban and peri-urban areas of Tajikistan, majority 65(100%) knew that human could be infected.[5]

In the present study Out of 400 participants, majority 305(76.3%) of participants agreed that brucellosis cause huge economic loss. Whereas 85(21.3%) neutral and 10(2.5%) disagree. A study was conducted among veterinarians in India. More than two third 99 (67.0%) agreed. Followed by 30(20.4%) disagree and 18(12.2%) neutral that brucellosis is very important disease causing huge economic loss to any other disease in cattle.[2]

In the present study Out of 400 participants, Majority 336(84%) agree that tagging helps in tracking disease. Whereas 53(13.3%) neutral and 11(2.8%) disagree. A study was conducted among veterinarians in India. Majority 104(73.8%) had positive attitude towards tagging the diseased animal. Whereas 22(15.6%) neutral and 15(10.6%) disagree.[2]

In the present study, majority 293(73.3%) of respondents do not consume unpasteurized milk or milk product. Whereas 107(26.8%) consume unpasteurized milk or milk products. Similar study was conducted among small scale dairy farmer in an urban and peri-urban areas of Tajikistan, majority 318(71.0%) of respondents do not consume unpasteurized milk or milk product. Whereas 123(28.0%) consume unpasteurized milk or milk products.[5]

In present study majority 386(96.50%) of respondents bury the Dead cattle foetus. Whereas 4(1.0%) Call veterinarian, 10(2.5%) Burn Similar study was conducted among small scale dairy farmer in an urban and peri-urban areas

of Tajikistan, majority 413(94.0%) of respondents bury the Dead cattle foetus. Whereas 9(2.0%) Call veterinarian, 2(0.5%) Burn, 7(1.6%) feed for dog, 10(2.1) don't know.[5]

In the present study majority 319(79.8%) of respondents took advise from experienced people in village to assure the health of new cattle. Whereas 77(19.3%) takes no action, only 4(1.0%) ask for veterinary inspection. Similar study was conducted among small scale dairy farmer in an urban and peri-urban areas of Tajikistan, majority 280(63.0%) of respondents takes no action to assure the health of new cattle. Whereas 142(32.0%) use more experienced people in village, only 19(4.3%) use veterinary inspection.[5]

In the present study majority 379(94.8%) of respondents seek veterinary if cattle are sick. Whereas 17(4.3%) use home remedy, 1(0.3%) slaughter, 3(0.8%) don't know. Similar study was conducted among small scale dairy farmer in an urban and peri-urban areas of Tajikistan, majority 359(81.0%) of respondents seek veterinary if cattle are sick. Whereas 77(17.0%) treat, 4(0.9%) slaughter, 1(0.2%) don't know.[5]

CONCLUSION

Study revealed that majority of farmer's had poor knowledge and bad practice but had positive attitude about brucellosis.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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