

The Awareness of Lumpy Skin Disease (LSD) Among Health Care Practitioners of Karachi, Pakistan

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ABSTRACT

Objective: Lumpy Skin Disease (LSD), the transborder illness can affect cows and water buffalo. Initially seen as an epidemic in the Saharan region of Africa, the disease later spread to central Asian countries, and ultimately, the virus entered Pakistan in early 2022. The negative impact on the large market for such items, as cow, buffalo meat, and milk because the Pakistani people love eating, caused turmoil. The present study was designed to evaluate the knowledge of healthcare practitioners (HCP) regarding various aspects of the LSD such as its clinicopathology, transmission, source of infection, epidemiology, diagnosis, prevention and control measures of disease.

Method: This study evaluated the knowledge of HCP in Karachi regarding LSD. It was descriptive and exploratory in nature and took place over a period of 2 months, i.e., February to March 2022. The respondents were randomly selected by convenience sampling and surveyed by a questionnaire.

Result: Out of 400 questionnaires, 320 were incorporated in the study and a response rate of 80.0% was achieved. The majority (60.3%) considered themselves to be somewhat knowledgeable; females had more knowledge as compared to male ($p < 0.000$). The status of knowledge was also significantly associated with the experience ($p = 0.000$) of respondents. Interestingly, the findings revealed that respondents' knowledge about LSD is good. Respondents considered LSD a severe disease and emphasized on the need for protective measures when contacting affected animals.

Conclusion: The knowledge of medical practitioners about LSD was significant. The findings from this study may serve as a baseline information for future epidemiological studies and support authorities to establish effective control programs for LSD in Pakistan. Other wise LSD is unquestionably posing a danger to dent Pakistan's livestock sector and business.

Keywords: Lumpy skin disease, epidemic, transborder, Pakistan, immunization.

INTRODUCTION

The Pakistani population enjoys a wide variety of taste and food in dining in and out both. Most of the food based on meat along with high consumption of dairy products like milk, yoghurt, butter and etc. In a region where people love to have traditional meaty food and live for eating, any issue regarding the livestock health, creates a panic among public and the acceptance take time to avoid such pathetic food. Similar is happening in Pakistan with the meat after the breakout of Lumpy disease among livestock. Lumpy skin disease (LSD), a major threat to stockbreeding, can cause acute or subacute disease in cattle and water buffalo [1].

The recent spread of the disease in disease-free countries indicates the importance of its transmission, as well as control and eradication [2].

However, the veterinary community as a whole agrees that illness is common in Pakistan as it shares borders with other Asian countries, where recent outbreaks have been observed. Although historically LSD-free, Pakistan now faces a high chance of an LSDV epidemic as nearby areas become endemic [3, 4].

A combination of vector control, vaccination, stringent quarantine regulations, and cattle movement restrictions may be successful in halting the development of the illness. However, social media posts depicting diseased animals with masses of pus on their skin have alarmed buyers. To protect cattle from LSD, the livestock agency has advised owners to keep sick animals separate from healthy ones and apply anti-mosquito spray often [5].

The illness was also being reported in Thatta, Jamshoro, Mirpurkhas, Hyderabad, Khairpur, Sanghar, Sukkur, and Nawabshah in addition to Karachi. Since flies are the most effective means of transmission and the incidence of LSD is highest during rainy seasons due to the abundance in flies population, the government established special teams and task forces to vaccinate cattle against the viral disease and to spray the cattle pens with an anti-mosquito solution. Ingestion, droplet or aerosol exposure to mucosal membranes, or injured skin, are other sources of transmission. It's interesting to note that different poxviruses can spread through inanimate objects or via close personal touch [6].

The characteristic symptoms of lumpy disease are fever, nasal discharge, unpalatability, salivation and lachrymation, prominent lymph nodes and these all results in very low milk production, weight loss and every so often death. Furthermore, skin nodules, two to seven centimeters that develop on the neck and back portions, legs and tail also, immediately after the onset of fever [7]. The pathogen affects more harshly to the young calves, underweight animals and lactating cows due to having high susceptibility to infections, possibly because the antibodies responsible for developing immunity are compromised [8].

LSD has been detected in India, China, and Iran, all of which share Pakistan's border possibly indicating a transboundary transmission channel. LSD is prevalent in Pakistan; it is still recognized as an epidemic threat for the country. This study was conducted to assess the knowledge and attitudes of HCPs towards LSD in Pakistan and to find out if educational training has increased their knowledge with regards to countering the threat from animals to humans.

METHOD

This was a descriptive, cross-sectional exploratory study conducted for a period of 2 months i.e., February to March 2022, to evaluate knowledge of LSD in HCPs of Karachi, Pakistan. All physicians, or doctors who are registered with the Pakistan Medical Council (PMC), were chosen as the study's target group. Doctors who practice medicine in Karachi, Pakistan, in both public and private clinical and hospital settings met the eligibility requirements. Our study excluded people working in other branches of healthcare, those who refused to participate, and those who provided insufficient information. Online sample size computation software that was used to determine the sample size calculation (Raosoft Inc.®, Seattle, DC, USA). Sample size needed was 377. Convenience sampling was used to pick the participants at random, and they were approached while they were free. After studying the relevant literature, a questionnaire was created. The questionnaire contains different questions related to LSD along with demographic data of HCPs.

The respondents have a week to completed the surveys. After this time, the completed surveys were gathered. IBM SPSS version 20 was used to analyze the survey items (Statistical Package for Social

Sciences, IBM Corporation, Armonk, New York, NY, USA). The demographic data and replies of the respondents were displayed using descriptive statistics and frequency. The association between the respondents' knowledge and the independent variables (demographics) was examined using Pearson's chi-square (X²) test.

The respondents were informed of the study's goals and objectives prior to the data collection, and their agreement was acquired. There was no inducement or compulsion to participate in the study. Participation was voluntary with a commitment to maintain confidentiality. A value of $p < 0.05$ was considered significant.

Prior to the data collection, the participants were enlightened about the aims and objectives of the study, and their oral approval was obtained. The entanglement in the research was willed with a commitment to maintain fortiveness without any kind of pressure or incentive for participation.

RESULTS

Out of 400 questionnaires, 350 questionnaires were returned. Thirty questionnaires were found uncompleted and were not included. A total of 320

questionnaires was incorporated in the present study with a response rate of 80.0%.

Out of 320 respondents, 56.25% were male while 43.75% respondents were female (Fig. 1). More than seventy percent (77.2%) respondents were in the age range of 25-30 years. 10.6% were between 31 and 35 years and were practicing in public sector health care settings (51.6%). More than half of the practitioners (51.25%) were in faculties of medical colleges. Thirty percent of them were consultant/surgeon. The detailed demographic characteristics and practice information are shown in table-1. Only a small segment (7.8%) of respondents considered themselves to be No knowledge. The majority (60.3%) considered themselves to be somewhat knowledgeable; females had more knowledge as compared to males ($p = 0.000$). The status of knowledge was also significantly associated with the experience ($p = 0.000$) of respondents (Fig. 2 & 3). Medical literature (50.6%) and mass media (38.8%) were found to be the major source of information for LSDV. Around 40% participants knew about the recent outbreak and 45.9% about the 2006 LSDV outbreak (Table-2).

Table 1. Demographic Information of Respondents.

Demographic Information	Frequency (%)
Gender	
Male	140 (43.75)
Female	180 (56.25)
Age	
25–30 years	247 (77.2)
31–35 years	34 (10.6)
36–40 years	9 (2.8)
41–50 years	7 (2.2)
51 and above	23 (7.2)
Organization	
Govt.	165 (51.6)
Private	155 (48.4)
Designation	
Chief medical officer	50 (15.6)
Consultant/Surgeon	97 (30.3)
Head of department	9 (2.8)
Faculty	164 (51.25)
Years of Experience	
1 to 5 years	201 (62.8)
5 to 10 years	80 (25)
10 to 15 years	9 (2.8)
20 and above	30 (9.4)
Every day number of patients treated	
1-40	125 (39.06)
41-80	105 (32.81)
80-120	90 (28.13)

Table 2. Cross-Illustration of Respondents' Demographics with Awareness.

Demographics	Knowledge Regarding LSDV			
	No Knowledge	No Adequate Knowledge	Somewhat Knowledgeable	Adequate Knowledge
Gender				
Male	9	25	90	16
Female	16	40	80	44
Designation				
Chief medical officer	0	7	16	27
Consultant/Surgeon	9	9	79	0
Head of department	0	0	9	4
Professor	0	5	9	4
Lecturer	20	74	44	8
Years of Experience				
1 to 5 years	25	23	126	27
Between 5 to 10 years	0	0	53	27
Between 11 to 15 years	0	0	0	9
Above 15 years	0	16	14	0

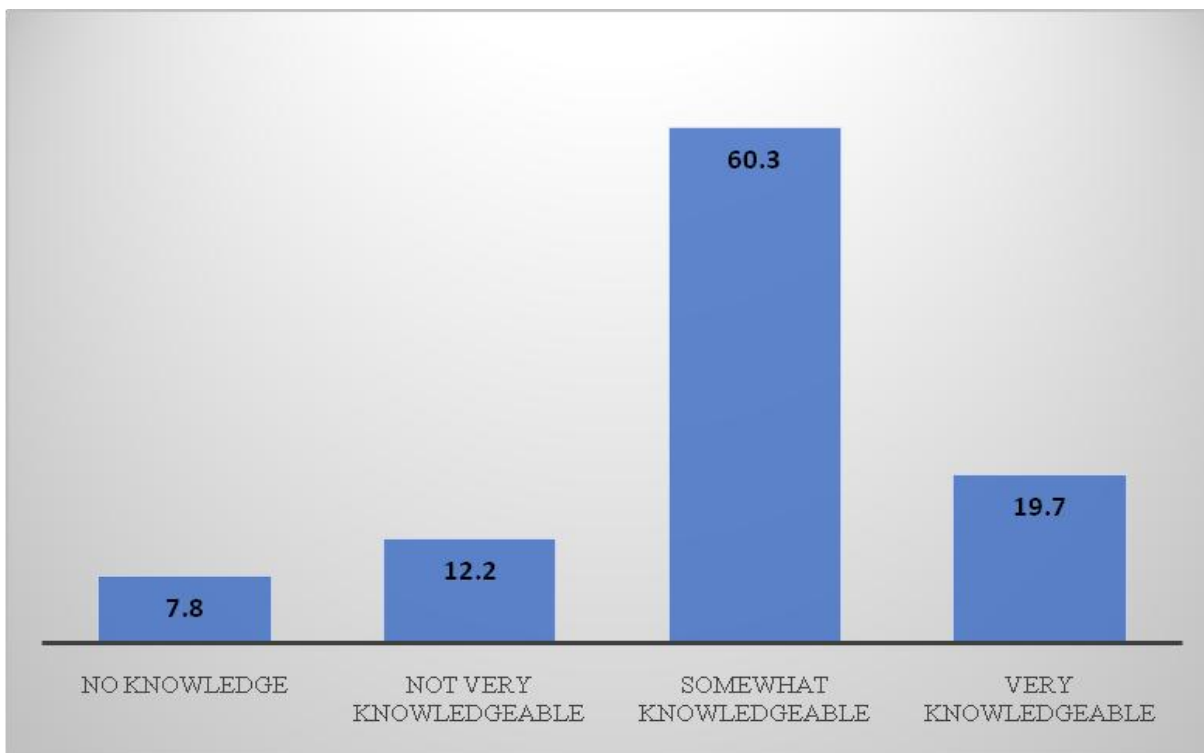


Figure 1. Participants' Knowledge about LSDV

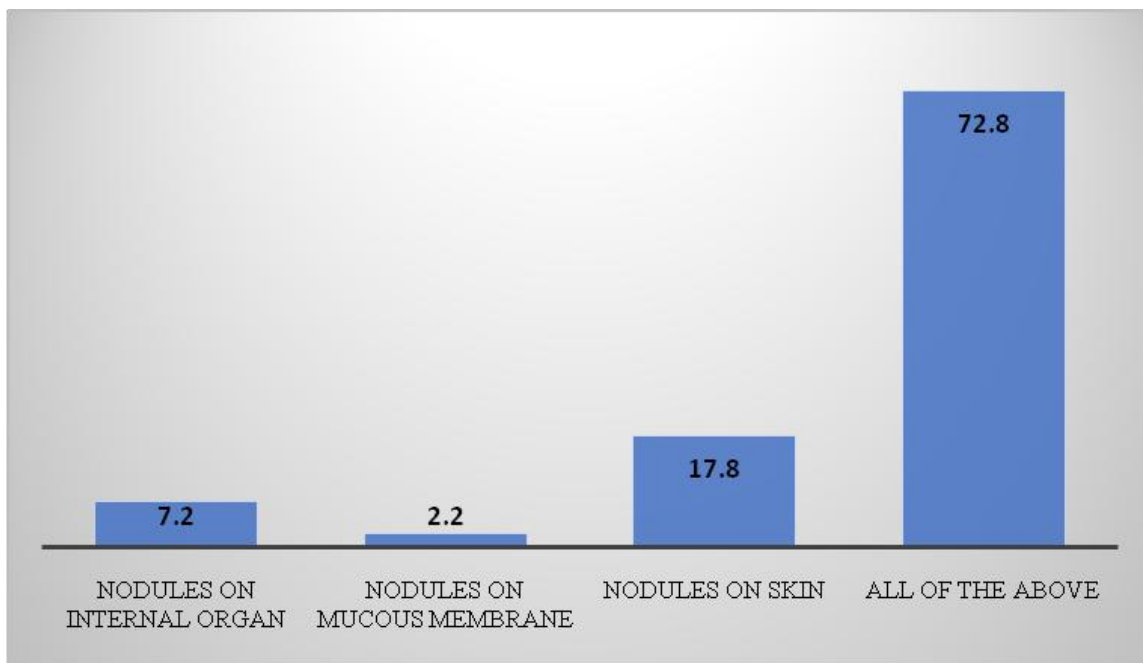


Figure 2. Participants' Knowledge about Clinical Features of LSDV.

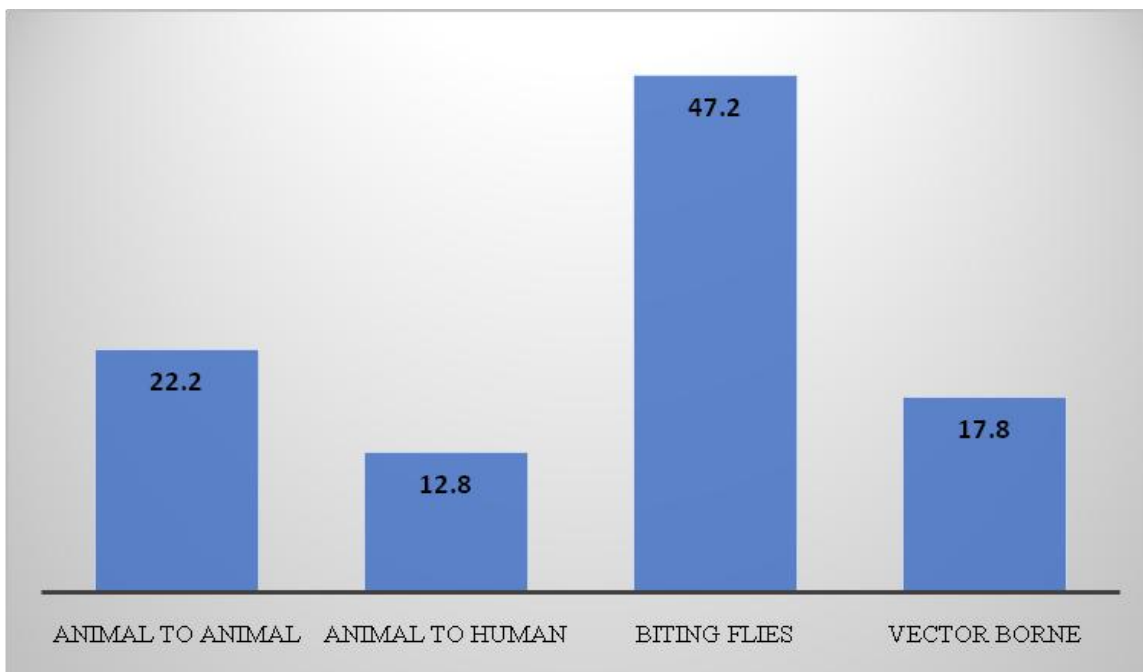


Figure 3. Participants' Knowledge about Route of Transmission of LSDV.

DISCUSSION

The breakout of Lumpy Skin Disease in Pakistan has created serious concerns among the people and the people are in doubt whether to consume the meat or not. Since there is no vaccine available for the disease yet, furthermore no major steps have been taken to control the viral disease [9, 10]. The first

case of LSD in cattle in India was reported in this study, which also examines epidemiological and genetic characterization information from LSD outbreaks in five districts of the state of Odisha in August 2019. There were a total of 182 afflicted animals out of 2,539 total cattle, with an apparent morbidity rate of 7.1% and no fatality. LSDV real-time

PCR detected 36.66% of the 102 samples from 60 LSD suspected and 17 asymptomatic in-contact cattle as positive, and capripoxvirus generic PCR detected 29.87% of the samples from cattle. All of the in-contact cattle that were tested for LSDV were negative.

According to the updates, approximately 20,000 animals, including 15,100 in Karachi only, have been affected by the Lumpy Skin Disease. This is an alarming situation that has happened first time in Pakistan. The present study regarding to LSDV in Pakistan was conducted to scrutinize the insights of health care practitioners about LSDV and interestingly, a smaller percentage (7.8%) of respondents considered masses, no knowledgeable about LSDV, whereas more than half of respondents (60.3%) contemplated themselves somewhat appreciative. This conclusion emphasizes the necessity for appropriate steps to raise doctors' knowledge levels through the implementation of educational initiatives such as ongoing medical education (CME). Moreover, efficient personnel training and the application of standard operating procedures. 45.9% knew about the 2006 LSDV outbreak in different countries.

Medical literature (50.6%) and Mass media (38.8%) were observed the respondents' most frequent sources of knowledge about LSDV. Warm and humid weather, circumstances that foster a plethora of vector populations, such as those seen following seasonal rains, and the introduction of additional animals to a herd are risk factors linked to the spread of LSD. Nearly half of the physicians in this survey identified animal-to-animal interaction (47%), and a significant portion (39%) also mentioned biting flies as the most frequent source of LSDV transmission [11, 12].

Over half (57.2%) of respondents agreed that an antibody-capture enzyme-linked immunosorbent assay (ELISA), antibody test, agar gel immune diffusion, fluoro reverse transcriptase polymerase chain reaction (RT-PCR) assay, and virus isolation by cell culture could be used to investigate LSDV, which was an interesting finding.

It is important to note that practitioners with more than ten years of work experience exhibited better knowledge of LSDV than those with fewer than five years of experience. The fact that experienced practitioners hold leadership positions that allow them to take part in ongoing medical education (CME)

activities that advance their knowledge over time is the most likely explanation for this direct association between knowledge growth and experience. An article that claimed that professionals with greater experience are more effective in dealing with patients in healthcare settings may also lend weight to this hypothesis [13-15].

CONCLUSIONS

In present study outcome, the knowledge of medical practitioners about LSDV was found compromising. The spread of capripoxvirus seems to be at high due to either low availability of vaccines and underprivileged farming communities in Pakistan. In addition to excessive legal and illegal transportation of live animals is highly accountable for developing endemic situation. The alarming scenario demands vaccination campaign in cattle farms along with restricted movement and the dismissal of infected animals. Furthermore, scientific sessions for health care practitioners will help to handle the chaos among general population.

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