ORIGINAL ARTICLE

Understanding Lassa Fever: An Analysis of Knowledge Levels and Preventative Strategies in Primary Healthcare Settings in Chennai

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ABSTRACT

Introduction: Lassa fever is an acute viral haemorrhagic illness caused by the Lassa virus, endemic to West Africa but has the potential to spread worldwide. Primary identification and prevention remain challenging in non-endemic regions due to lack of awareness and readiness among healthcare personnel and patients. The disease is primarily spread to human over contaminated food or domestic things with the urine or faeces of infected rodents. The aim of this study is to evaluate the knowledge and preventive practices regarding the Lassa fever among the public who are attending a Primary Health Centre (PHC) in Chennai, India. **Methods:** A descriptive, observational research was conducted among 100 individuals attending the Primary Health Centre (PHC) located at Saidapet between February and October 2023. Convenience sampling technique was used to choose the participants. A standardized questionnaire created by the researchers to evaluate knowledge and preventative measures on Lassa fever was used to collect data. **Results:** Only, 8% of participants had adequate knowledge of preventing Lassa fever, whereas 60% had inadequate knowledge and 32% had acceptable knowledge. The average knowledge score was 6.04 ± 2.64 (range: 3–15; median: 5.0). **Conclusion:** The findings indicate that PHC attendees in Chennai have limited awareness about Lassa fever. To improve willingness and reduce the possible effect of new infectious hazards in non-endemic areas, PHCs must strengthen their capacity-building, health education, and awareness efforts. This study support SDG 3 (Good Health and Well-Being) by creating awareness about disease and community health resilience.
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INTRODUCTION

Lassa virus is a member of the family Arenaviridae which causes the disease Lassa fever. It is a serious viral hemorrhagic sickness spread by the multimammate rat, scientifically called as Mastomys natalensis (1, 2). This primary reservoir host excrete urine and feces contains virus for prolonged periods (3). Humans get the disease through person-to-person transmission in medical facilities as well as direct contact with tainted food, objects, or surroundings (4, 5).

Lassa fever poses a threat to human life particularly in non-endemic countries due increasing global travel and trade. Mastomys rodents are abundantly present in West, Central, and East Africa, thriving in human dwellings and food storage areas due to their high reproductive rate and survivability (6-9). Most commonly, people infected through ingestion or inhalation of virus contaminated food, handling of infected rodents, or exposure of open wounds, which are occasionally used as food in several regions (10-12).

The structure of the Lassa virus mainly comprises of nucleoproteins (NP), which encapsulates viral genomic RNAs into ribonucleoprotein (RNP) complexes, is an essential for both transcription and RNA replication (13). Lassa fever is listed by the World Health Organization (WHO) as a high priority illness that need timely monitoring and rapid treatment. Effective control of this disease depends on community awareness, strong preventive measures and early identification.

Planning for new viral diseases continues to be an important health issue in India, especially in metropolitan cites like Chennai. PHCs are essential as the very first point of contact for the provision of healthcare, particularly in the areas of disease prevention, health

education, and epidemic planning. However, there aren't numerous studies that assess Lassa fever prevention and knowledge among PHC patients in India. Therefore, this study was evaluated to assess the knowledge levels and preventive strategies related to Lassa fever among individuals attending Saidapet PHC in Chennai, with the aim of identifying gaps and informing targeted public health interventions. This study deals about the public health and its is directly support the SDG 3 i.e. Good Health and Well-Being, which highlights establishment health promotion, early diagnosis, and risk reduction for contagious diseases

MATERIALS AND METHODS

Many Primary Health Centre (PHCs) are established to serve populations of nearly 20,000 in urban areas and 30,000 in rural areas. PHC in India serve as the first level of contact in public health care system. The Saidapet PHC provides comprehensive services, including prenatal checkups, folic acid supplementation, urine pregnancy testing, prescriptions for common illnesses, and appropriate referrals. Its scope also covers maternal and child health care, family planning, safe water and cleanliness, control of endemic diseases, vital statistics reporting, health instruction, and implementation of national health plans. Additionally, the PHC offers blood tests and treatment for hypertension, thyroid disorders, and selected cardiac diseases.

This descriptive cross-sectional study was conducted at the Saidapet PHC, Chennai between February 10, 2023, and October 30, 2023, with official authorization from the Principal of Saveetha College of Nursing. The study sample consisted of 100 residents attending the Saidapet PHCs. A convenient non-probability sampling technique was employed to recruit participants who satisfied the inclusion criteria, namely adults aged 18 years and above who provided informed consent. Prior to participation, individuals were briefed on the study's purpose and objectives, and written informed consent was obtained. This study was conducted after obtaining ethical clearance obtained from the Institutional Ethics committee of Saveetha Medical College and Hospital (Approval No. 012/2022/ISRB/SCON).

A structured questionnaire developed by the researchers was used to assess knowledge of participants and preventive practices regarding Lassa fever. The questionnaire consisted of items covering modes of transmission, clinical features, preventive strategies, and awareness levels. The tool was pretested for clarity and consistency before use. Each interview lasted approximately 20–30 minutes.

Data were analyzed using descriptive statistics. Frequency, percentage, mean, standard deviation, and median were calculated to evaluate knowledge levels. The association between the demographic variables and knowledge levels were evaluated using the Chi-square test with $p < 0.05$ considered statistically significant.

RESULTS

A total of 100 participants were included in the study, with the majority being male (70%) and aged 25–35 years (54%). Most participants had primary education (74%), were labourers (58%), and resided in rural areas (74%) (Table I).

Regarding knowledge on Lassa fever, the majority of participants demonstrated inadequate knowledge (60%), followed by moderately adequate (32%) and adequate knowledge (8%) (Table II). The overall mean knowledge score was 6.04 ± 2.64, with a median of 5.0, indicating generally low awareness levels (Table III).

Analysis of the association between knowledge level and demographic variables revealed no statistically significant relationships with gender, age, education, occupation, residence, type of family, or income ($p > 0.05$). However, source of information showed a significant association with knowledge level ($\chi^2 = 12.287$, $p = 0.015$), suggesting that access to information plays a key role in awareness (Table IV).

Table I: Frequency (f) and distribution percentage (%) of demographic variables of the community people (N = 100)

Demographic Variables		Frequency (f)	Percentage (%)
Gender	Male	70	70.0
	Female	30	30.0
	Transgender	-	-
Age	15 –25	24	24.0
	25 –35	54	54.0
	>35	22	22.0
Education	Illiterate	8	8.0
	Primary	74	74.0
	Graduate	18	18.0
Occupation	Unemployed	22	22.0
	Homemaker	20	20.0
	Labourers	58	58.0
Residence	Rural	74	74.0
	Urban	26	26.0
Type of family	Nuclear	76	76.0
	Joint	16	16.0
	Single	8	8.0
Income	<1000	10	10.0
	1001 –3000	60	60.0
	>3000	30	30.0
Source of information	T. V	66	66.0
	Radio	8	8.0
	Newspaper	26	26.0

Table II: Frequency (f) and percentage distribution (%) of Knowledge Scores on Lassa Fever and its Prevention

Level of Knowledge	Frequency (f)	% Percentage
Inadequate (≤5)	60	60.0
Moderately adequate (6 – 10)	32	32.0
Adequate (11 – 15)	8	8.0

Table III: Evaluation of knowledge level in awareness and prevention of Lassa fever among PHC inhabitants

Knowledge level	Score
Minimum	3.0
Maximum	15.0
Median	5.0
Mean ± standard deviation	6.04 ±2.64

DISCUSSION

According to the current study, only 8% of participants at Saidapet PHC possessed appropriate awareness of Lassa fever, while the majority had insufficient awareness. These results are in line with previous data from Nigeria, where both rural and urban people have been shown to have poor preventative measures and inadequate awareness (14-20).

Similar to the current study, Ogboghodo et al (14) discovered that more than 80% of respondents lacked systematic understanding of Lassa fever transmission and prevention. Low risk perception, a lack of focused treatments, and a lack of health education have all been linked to poor community-level education. This finding is corroborated by our research, which reveals a glaring ignorance gap among Chennai's general population and it is a non-endemic region where responsiveness regarding evolving transmissible diseases remains inadequate.

The poor knowledge levels among PHCs demonstrate the urgent need for public health interventions. Providing accurate information, conducting focused community education, and incorporating emerging infectious disease preparedness into PHC activities are all essential. Despite the lack of indigenous Lassa fever cases in India, the country's growing population mobility and importation danger highlight how crucial early preparedness.

The function of PHCs as sentinel locations for prevention, surveillance, and awareness-raising is one of the study's main implications. To improve preparedness, it is advised that healthcare personnel receive targeted training, that health education campaigns address viral hemorrhagic fever readiness, and that national and international organizations (such the NCDC and WHO) collaborate together. In addition, nurse administrators should initiate or develop frameworks to improve effective safety measures to be taken. Nurse administrators can

Table IV: Association between knowledge level and selected demographic variables (N = 100)

Variable	Category	Inadequate n (%)	Moderate n (%)	Adequate n (%)	χ^2 (df)	p-value	Significance
Gender	Male	40 (40.0)	12 (24.0)	3 (6.0)	0.397 (2)	0.820	NS
	Female	20 (20.0)	4 (8.0)	1 (2.0)			
Age (years)	15–25	16 (16.0)	3 (6.0)	1 (2.0)	8.863 (4)	0.065	NS
	25–35	24 (24.0)	13 (26.0)	2 (4.0)			
	>35	20 (20.0)	0 (0.0)	1 (2.0)			
Education	Illiterate	6 (6.0)	1 (2.0)	0 (0.0)	1.155 (4)	0.885	NS
	Primary	42 (42.0)	13 (26.0)	3 (6.0)			
	Graduate	12 (12.0)	2 (4.0)	1 (2.0)			
Occupation	Unemployed	12 (12.0)	4 (8.0)	1 (2.0)	3.214 (4)	0.523	NS
	Homemaker	12 (12.0)	2 (4.0)	2 (4.0)			
	Labourers	18 (18.0)	10 (20.0)	1 (2.0)			
Residence	Urban	14 (14.0)	3 (6.0)	3 (6.0)	5.540 (2)	0.063	NS
	Rural	46 (46.0)	13 (26.0)	1 (2.0)			
Family type	Nuclear	42 (42.0)	13 (26.0)	4 (8.0)	3.894 (4)	0.421	NS
	Joint	10 (10.0)	3 (6.0)	0 (0.0)			
	Single	8 (8.0)	0 (0.0)	0 (0.0)			
Income	<1000	6 (6.0)	1 (2.0)	1 (2.0)	5.563 (4)	0.234	NS
	1001–3000	30 (30.0)	13 (26.0)	2 (4.0)			
	>3000	24 (24.0)	2 (4.0)	1 (2.0)			
Source of information	TV	34 (34.0)	15 (30.0)	1 (2.0)	12.287 (4)	0.015	S
	Radio	6 (6.0)	1 (2.0)	0 (0.0)			
	Newspaper	20 (20.0)	0 (0.0)	3 (6.0)			

Notes: Values are presented as frequency (percentage). χ^2 = Chi-square test; df = degrees of freedom; S = Significant ($p < 0.05$); NS = Not significant.

play a vital role by conducting in-service education programmes to bring awareness among student nurses and community people regarding on Lassa fever. A similar study can be conducted on a larger population across various settings, including comparative assessments of knowledge on Lassa fever between rural and urban communities, as well as experimental evaluations of the effectiveness of different educational methods in improving community knowledge.

CONCLUSION

This study highlights significant weaknesses in the Lassa fever prevention strategies and understanding of patients at a Chennai primary healthcare centre. The results emphasize the 60% of participants showing inadequate knowledge, there is a critical need for enhanced community-based awareness initiatives, health education programmes, and training for healthcare staff in non-endemic regions. PHCs may be strengthened by providing facilities, educating medical staff, and incorporating new information about infectious diseases into regular health education. Taking proactive steps can improve early identification, increase readiness for epidemics, and lessen the possible impact of introduced Lassa viruses spreading in India.

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