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## A study to assess the effectiveness of structured teaching programme on knowledge regarding leptospirosis and its prevention among agricultural workers at selected rural areas in Mysuru

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### **Abstract**

Leptospirosis is an infectious disease of humans and animals that is caused by pathogenic spirochetes of the genus leptospira. It is considered the most common zoonosis in the world and is associated with settings of poor sanitation and agricultural occupations involving contact with animals or water. Affected reservoir species experience tonic colonization of proximal renal tubules and shed leptospores in urine. Humans are not typically considered reservoirs but may chronically shed leptospores and may act as reservoirs in areas of high endemicity and poor waste sanitation. Pre-experimental one group pre-test post-test design was used to assess the effectiveness of a structured teaching program on knowledge regarding leptospirosis and its prevention among agricultural workers in selected rural areas at Mysuru. In view of the nature of the problem and to accomplish the objectives of the study, a structured teaching programme was prepared focusing on knowledge regarding leptospirosis and its prevention among agricultural workers at selected rural areas in Mysuru. Reliability ( $R=0.91$ ) of the tool was tested and validity was ensured in consultation with guides and experts in the field of statistics, pediatrics and nursing. The study was carried out in Hanchya, Rammanahalli village at Mysuru by Non-probability convenient sampling technique, 60 agricultural workers were selected. Structured knowledge questionnaire was administered to collect the needed data.

Data was analyzed by using descriptive and inferential statistics. With regard to the knowledge assessment, the mean post test score was 19.57 and pre test score 8.72. Theme and difference between pre-test score and post-test score was 10.85. The computed Paired 't' value was 20.24 and it was significant at 5% level. This showed that STP on knowledge regarding to leptospirosis and its prevention among agricultural workers was effective. Therefore the research hypothesis ( $H_1$ ) is accepted, i.e. there is significant difference between mean pre-test and mean post-test knowledge score. This study revealed that the STP on knowledge regarding to leptospirosis and its prevention among agricultural workers was effective.

**Keywords:** Leptospirosis, zoonosis, pathogenic spirochetes, leptospira genus

### **Introduction**

Leptospirosis caused by spirochetes such as *Leptospira interrogans*, occurs in a diverse epidemiological and under developed and developing countries, in India the infection of Leptospirosis is considered as endemic in Karnataka, Kerala, Tamil Nadu, Gujarat, Andaman, Maharashtra states. Leptospirosis is transmitted from infected animals to humans. This infection can be acquired either through direct contact with animals and environmental contamination by animals urine, it occurs through ingestion of contaminated food or water through surface, skin contact by breaks in the skin, these bacteria are shed through urine of rats, rodents, livestock, infected dogs and cattle's urine.

Leptospirosis having these clinical features are high fever, feverish with headache, bleeding, muscle pain, chills, red eye's, vomiting, meningitis and painful pustules. If symptoms are not identified in early stage it leads to fatal complication and risk factor for infection vary significantly between countries to countries and also depend on many cultural ecological conditions. In developing countries like in India the infection is mostly related to farming activities, contact with animals (rats, rodents and livestock's), poor sanitation, urban overcrowding, poor waste disposal, heavy rainfall and flooding.

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The incubation period of leptospirosis ranges from 2 to 26 days, divided in two phases the first or leptospiremic phase with sudden onset of headache also having pain around the temples and eyes, fever with chills, severe muscle aches, redness of eyes, phase last for 4 to 9 days with temperature exceeding 39 degree celcius for 8-10 days after infection. The bacteria (leptospira) can be detected in the blood and cerebrospinal fluid. The second or immune phase is seen after 6-12 days when the patient develops high fever with evidence of involvement in the brain, it also affect optic nerve, liver, kidneys leading to metabolic failure.

Risk factors for infection vary significantly between countries, and depend on many cultural, environmental, and ecological variables. In developing countries, infection is mostly related to farming activities, contact with animals (rats, other rodents, and livestock), poor sanitation, urban overcrowding, poor waste disposal, heavy rainfall, and floods. Globally, There have been many reports of epidemics after severe flooding. With climate change, extreme climate events such as flooding are expected to occur with increasing frequency, potentially leading to an increase in general incidence as well as frequency of outbreaks of leptospirosis. Infection has also been associated with recreational activities such as freshwater swimming, rafting, kayaking, canoeing, fishing, hunting, caving, hiking, and trail biking. Other risk factors include walking barefoot, immersion in water, and contact with floodwater, drinking river water, and having skin wounds. There are wide varieties of diagnostic tests available to detect

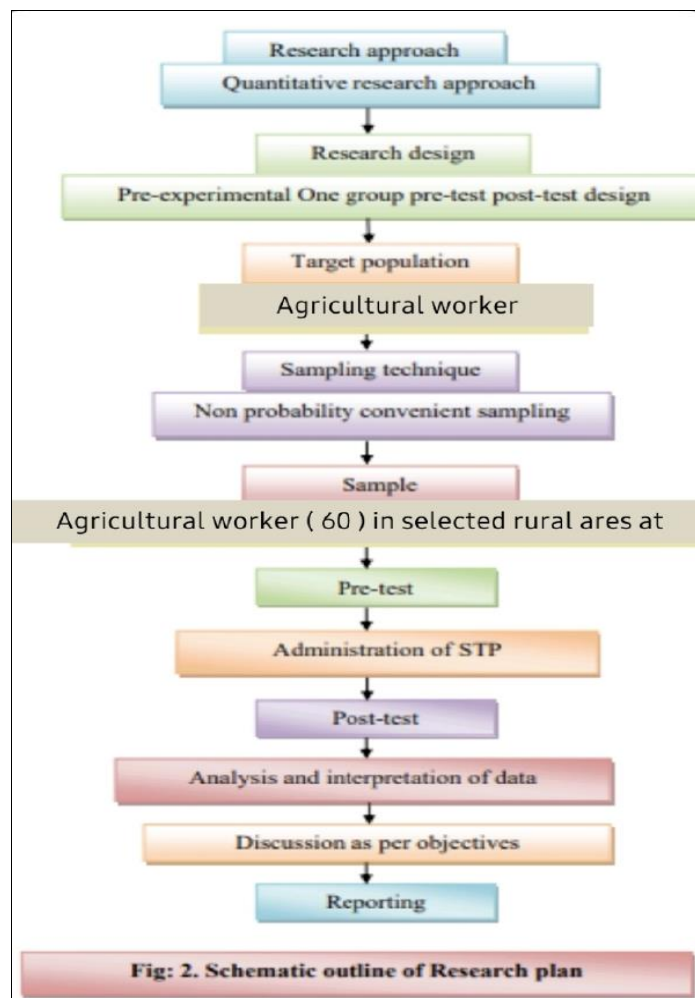
leptospirosis like blood culture, nuclic acid tests (Polymerase chain reaction), serology or enzyme linked immunosorbent assay (ELSA) and immunoglobulin M (IGM) diagnosis conformed to microscopic agglutination test with high specificity.

Agriculture is a main occupation among rural population having wide verities of agricultural activities including animal husbandry, planting, harvesting, cleaning, storage transportation and live stocks maintenance which may cause leptospirosis among farmers hence special attention is needed to prevent health problems caused by agricultural activities. Most farmers are victims of leptospirosis due to rodents' control, poor hygiene and vaccine failure and negligent of sanitation at agriculture lands. Farmer is a person who works in all agricultural activities like planting, cultivation, pre and post-harvest duties, looking after livestock's hence farmer must have proper knowledge about healthy human and animal farming activities.

**Materials and Methods**

**Research design**

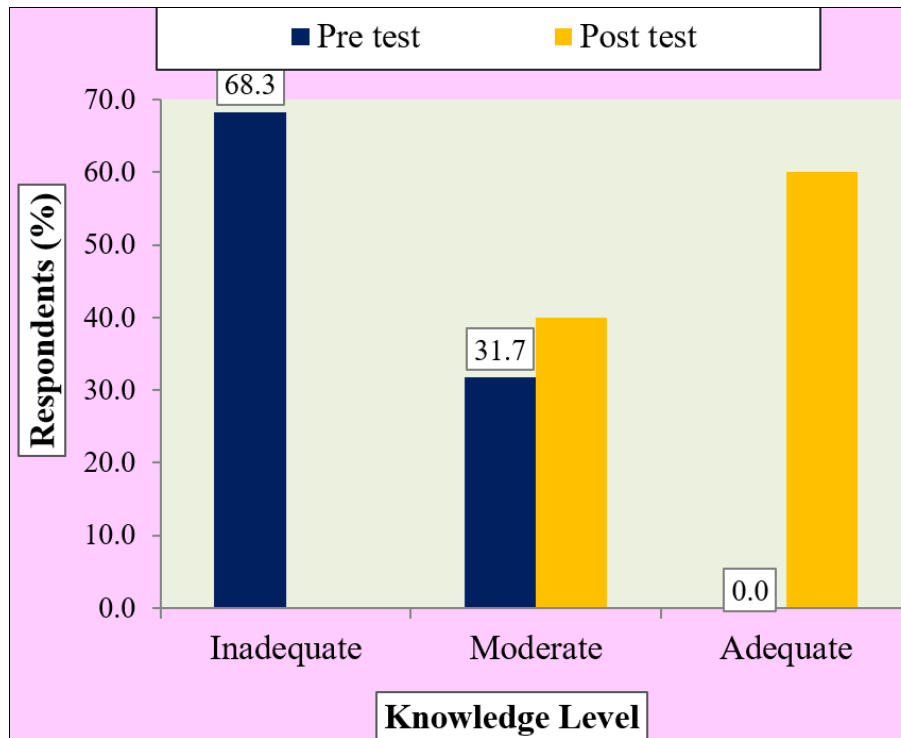
Researcher's overall plan for obtaining answer to the research questions for testing the research hypothesis is referred to as the research design. The essential question that research design is concerned is how the study subjects will be brought into the research and how they will be employed within the research design. The research design used in this study is pre-experimental, one group pre-test post-test design.



**Fig 1:** Schematic outline of Research plan

**Results**

**Knowledge of agricultural workers regarding leptospirosis and its prevention**



**Fig 2:** Distribution of agricultural workers according to pre-test and post-test level of knowledge score

Data from the above figure depicts that in pre-test 68.3% participants had inadequate knowledge, 31.7% participants had moderate knowledge and none of them had adequate knowledge regarding leptospirosis and its prevention among agricultural workers. In post-test 60% participants had adequate knowledge and 40% participants had moderate knowledge and none of them had inadequate knowledge.

**Table 1:** Effectiveness of structured teaching programme on knowledge regarding leptospirosis and its prevention among agricultural workers in Hanchya, Rammanahalli village Mysuru

Aspects	Max. Score	Knowledge Scores				Paired 't' Test
		Mean	SD	Mean (%)	SD (%)	
Pre test	24	8.72	3.78	36.3	15.8	20.24*
Post test	24	19.57	2.13	81.5	8.9	
Enhancement	24	10.85	4.14	45.2	17.3	

t(0.05,59 df)=1.96

Data in table 3 illustrates that the mean post test knowledge score (19.57) was higher than the mean pretest knowledge score (8.72). The mean difference between pretest score and post test score was (10.85), paired 't' test knowledge score was 't'=17.3 is significant at 0.05% level. Hence research hypothesis H1 was accepted. This infers that the STP was effective in increasing the knowledge related to leptospirosis and its prevention among farmers and statistically 5% significant.

**Conclusion**

Leptospirosis is an infectious disease of the of humans and animals that is caused by pathogenic spirochetes of the genus *Leptospira*. It is considered the most common zoonosis in the world and is associated with settings of poor sanitation and agricultural occupations involving contact with animals or water, increasingly, adventurous travel and

“mud run” sports or races involving fresh water or soil exposure put humans at risk. Affected reservoirs species experience chronic colonization of proximal renal tubules and shed leptospires in urine. Humans are not typically shed leptospires and may act as reservoirs in areas of high endemicity and poor waste sanitation.

The present study was conducted to assess the effectiveness of structured teaching programme on knowledge regarding Leptospirosis and its prevention among agricultural workers. The following conclusions were made on the basis of the findings of the study. It also brought out the limitations of the study in picture.

- The knowledge regarding Leptospirosis and its prevention among agricultural workers was inadequate when assessed in pre-test, whereas the knowledge level showed significant increase during post-test.
- Structured teaching programme on knowledge regarding Leptospirosis and its prevention among agricultural workers was effective. The analysis of mean and SD of the knowledge scores in pre-test and post-test revealed that the mean pre-test knowledge score was 8.72, whereas post-test knowledge score was 19.57. The Paired 't' test value 20.24 showed that the knowledge level had significant increase during post-test which indicated that structured teaching programme was effective.
- This study showed that the association between the level of pre-test knowledge score and dietary pattern, type of family, type of house, previous knowledge, source of information status was statistically significant, where as the association between the levels of pre-test knowledge score with age, educational status, and religion, family income was statistically not significant.

**Limitations**

The limitations of the present study were

- The study was restricted to small number of samples 60 agricultural workers selected through an on probability convenient sampling, in Hanchya and Rammanahalli village, which limits the generalization of findings.
- A structured knowledge questionnaire was prepared for data collection, which restricts the amount of information that could be obtained from the samples.
- No attempt was made to do follow up of agricultural workers.
- The study lacked control group which did not allow the researcher to test the increase on agricultural workers knowledge without STP.

**Suggestions**

- An orientation program regarding Leptospirosis and its prevention among agricultural workers could be beneficial for the agricultural workers as it could ensure an effective performance towards achieving appropriate knowledge regarding leptospirosis, its prevention and protecting them from the leptospirosis.
- Periodical evaluation should be conducted by the village head to ensure that the standards of knowledge regarding leptospirosis and its prevention.
- Implementation of a STP regarding leptospirosis and its prevention enrich the knowledge of agricultural workers.

**Recommendations**

- A similar study can be replicated on a larger sample with different demographic characteristics.
- A Similar study can be conducted using other strategies like SIM, booklets and pamphlets.
- A similar study can be conducted among agricultural workers about leptospirosis and its prevention.
- A comparative study can be conducted to assess the knowledge regarding leptospirosis and its prevention among agricultural workers in rural and urban area.
- A follow up study can be conducted to find out the effectiveness in terms of retention of knowledge among agricultural workers and to re-in force health promotion teaching services.

**Conflict of Interest**

Not available.

**Financial Support**

Not available.

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