



EFFECTIVENESS OF STRUCTURED TEACHING PROGRAM ON KNOWLEDGE REGARDING PREVENTION OF MOSQUITO BORNE DISEASES AMONG NATIONAL RURAL EMPLOYMENT GUARANTEE SCHEME EMPLOYEES IN SELECTED VILLAGES AT KOLLAM

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Article Info

Received 21/10/2021; Revised 18/11/2021
Accepted 04/12/2021

ABSTRACT

A quantitative research study was aimed to evaluate the effectiveness of structured teaching program on knowledge regarding prevention of mosquito borne diseases among National Rural Employment Guarantee Scheme (NREGS) employees in selected villages of Kollam. The objectives were to assess the knowledge regarding prevention of mosquito borne diseases among NREGS employees, to evaluate the effectiveness of structured teaching program on knowledge regarding prevention of mosquito borne diseases among NREGS employees and to find out the association between pre-test knowledge scores regarding prevention of mosquito borne diseases among NREGS employees and selected socio demographic variables. Quantitative study design was employed. The study was carried out in Thenmala Panchayat ward V and VI at Urukunnu. A total of 50 subjects were selected using cluster sampling technique. The tool used for the study were socio demographic variables Performa, questionnaire for assessing knowledge regarding prevention of mosquito borne diseases. Result showed that knowledge scores of 10% subjects had below average level of knowledge, 90% subjects had average level of knowledge. The post-test scores revealed that 86% subjects acquired good level of knowledge and 14% subjects had average level of knowledge regarding prevention of mosquito borne diseases. Structured teaching program (STP) in the subjects regarding knowledge were 14.78 and 23.06. The mean difference of pre-test and post-test were 8.28. The calculated t value was 15.29 with the p value of < 0.001. This indicated that improve in the scores of knowledges among NREGS employees as a result of STP was statistically significant at 0.05 level. Results also revealed that there was no significant association between pre-test knowledge scores and socio demographic variables.

Key Words: NREGS employees; Mosquito Borne Diseases; Structured Teaching program.

INTRODUCTION

Human beings are affected with different kinds of illnesses in their journey of life especially diseases which can be transmitted through vectors. Vector-borne diseases have long been associated with significant human illness and death. Over half of the world human

populations are currently at risk from vector-borne infections, which collectively account for 17% of the human global infectious disease burden.[2] World Health Organization quotes that an estimated 300 million malaria infections occur each year, with 2 million death. Dengue is



the most rapidly spreading mosquito-borne viral disease in the world. It infects 50 to 100 million people annually. The World Health Organization reported on 30th November 2020 that vector-borne diseases account for more than 17% of all infectious diseases, causing more than 700 000 deaths annually. They can be caused by either parasites, bacteria or viruses. Malaria is a parasitic infection transmitted by Anopheline mosquitoes. It causes an estimated 219 million cases globally, and results in more than 400,000 death every year. Most of the death occur in children under the age of 5 years. Dengue is the most prevalent viral infection transmitted by Aedes mosquitoes. More than 3.9 billion people in over 129 countries are at risk of contracting dengue, with an estimated 96 million symptomatic cases and an estimated 40,000 death every year, the largest number of dengue cases ever reported globally in 2019.[2]

In India 1.3 lakhs cases and 132 deaths were reported till last November. Whereas in Kerala it was 4651 and 14 deaths, at Kollam District 696 cases and 3 deaths respectively. The area where National Rural *Employment* Guarantee Scheme employees (NREGS) working is prone to mosquito borne diseases due to stagnation of water, that leads to breeding of mosquitos and its survivals.

In India, most seen mosquito borne diseases are malaria, dengue fever and chikungunya. They are considered as a major public health problem in the country. The world malaria report in 2019 showed that 19 countries in sub-Saharan Africa and India carried almost 85% of the global malaria burden. About 95% population in the country resides in malaria endemic areas. In 2019, 13.5 lakhs malaria cases and 73 deaths were reported in India. In the year 2019 the state of Kerala reported 656 Malaria cases and 1 death. At Kollam district it was reported 40 cases in the same year.

The chikungunya was a mosquito borne viral disease first described during an outbreak in southern Tanzania in 1952. It is an RNA virus that belongs to the alphavirus genus of the family togaviruses. The chikungunya infection had shown an increase in its incidence as high as 5 million in India and South East Asia since 2005. India reported a massive chikungunya epidemic in 2007. Chikungunya had re-emerged in India since 1973. It emerged as an important public health problem in India in 2019, 65 thousand cases were reported and in Kerala 109 cases. At Kollam there was no cases reported in 2019.

Malaria, Dengue and Chikungunya are important public health problems in India and pose an enormous burden to the health system. Controlling the vector remains the most effective method of preventing these diseases. The current status of these three vectors borne diseases and the latest development in terms of management, prevention and control are essential for the

case reduction. In the community settings, there are lot of steps and program towards prevention of mosquito borne diseases but daily intensive practices are lacking among rural employees. This leads to report more cases from National Rural Employment Guarantee Scheme employees. Environmental management strategies that reduce or eliminate vector breeding sites combined with improved personal prevention strategies can help to significantly reduce transmission of these infections. Investigator observed directly the environmental factors among NREGS employees and poor practices to eliminate mosquito breeding sites and anti-larval measures which constitute ill health of these employees. So, a planned teaching program among them has much importance in the present scenario.

OBJECTIVES

- To assess the knowledge regarding prevention of mosquito borne diseases among NREGS employees.
- To evaluate the effectiveness of structured teaching program on knowledge regarding prevention of mosquito borne diseases among NREGS employees.
- To find out the association between pre-test knowledge scores regarding prevention of mosquito borne diseases among NREGS employees with selected socio demographic variables.

MATERIAL AND METHODS

A quantitative research study was aimed to assess knowledge regarding prevention of mosquito borne diseases among NREGS employees in selected villages of Kollam. The effectiveness of structured teaching program on knowledge regarding prevention of mosquito borne diseases among NREGS employees was evaluated. Cluster Sampling technique was used to select the subjects. The research design was one group pre-test post-test design. Structured knowledge questionnaire was used for collecting the data. Pre-test was administered followed by structured teaching program and post-test conducted. The data was analyzed using descriptive and inferential statistics. Duration of data collection was 2 weeks. Ethical clearance has been taken after the ethics committee meeting from Holy Cross Hospital, Kollam.

Inclusion criteria

The study included:

- Employees working under NREGS in ward V and VI of Thenmala.
- NREGS employees present at the time of study

Exclusion criteria

The study excludes

- NREGS employees who have attended teaching program regarding prevention of mosquito borne diseases.



- NREGS employees who are not able to read and write Malayalam.

HYPOTHESES

Hypothesis will be tested at 0.05 level of significance.

H₁: The mean post-test knowledge scores are significantly higher than the mean pre-test knowledge scores regarding prevention of mosquito borne diseases among NREGS employees.

H₂: There is significant association of pre-test knowledge scores regarding prevention of mosquito borne diseases among NREGS employees with selected socio demographic variables.

STATISTICS

To compute the data a master data sheet was prepared. Data was analyzed using descriptive and inferential statistics. The distributions of subjects according to demographic variables were shown using frequency, percentages and graphs. Percentage distribution of subjects with reference to the pre-test and post-test scores of knowledge regarding prevention of mosquito borne diseases among NREGS employees were presented by using table. Significant difference in the pre-test and post-test mean knowledge scores of Fifty NREGS employees was assessed by using Paired 't' test. The association between pre-test level of knowledge scores regarding prevention of mosquito borne diseases among NREGS employees with selected socio-demographic variables was tested by using chi square.

RESULTS

The result of the pre-test study was examined under the following sections:

Section 1: Description of the socio demographic variables of NREGS employees.

- Out of 50 subjects, 54% of employees belonged to 41-60 years of age group, 44% of them were 18-40 years and 2% of employees belonged to above 61 years.
- Regarding gender, 100% NREGS Employees were female.
- Distribution based on education depicts most of the subjects that is, 74% of them had higher secondary education, 20% of subjects had primary education and 6% of subjects with university level of education.
- Regarding colour code of ration card 8% subjects had yellow colour ration card, 56% subjects had Pink colour ration card and 20% subjects had Blue colour ration card 16% of subjects had White colour ration card.
- Living condition of the subjects ie, 82% subjects lived in partially built house, 4% of subjects'

habitats were nearby waste dumping area, 8% of subjects lived near open drainage and 6% stayed in huts.

- Distribution based on precaution taken by the subjects in order to prevent mosquito borne diseases. About 92% subjects had taken precautions and 8% did not take any precautions.

Previous knowledge of subjects distributed as 74% of subjects had previous knowledge regarding prevention of mosquito borne diseases, whereas 26% subjects had no previous knowledge.

Section 2: Assessment of knowledge scores on prevention of mosquito borne diseases of NREGS employees on pre-test and post-test.

The knowledge scores showed that 10% subjects had below average level of knowledge, 90% subjects had average knowledge and none of the subjects had good level of knowledge on pre-test. The post-test knowledge scores revealed that 86% subjects acquired good level of knowledge and 14% subjects had average level of knowledge regarding prevention of mosquito borne diseases.

Table 1 showed that knowledge scores of 10% subjects had below average level of knowledge, 90% subjects had average knowledge and none of the subjects had good level of knowledge in pre-test. The post-test knowledge scores revealed that 86% subjects acquired good level of knowledge and 14% subjects had average level of knowledge regarding prevention of mosquito borne diseases.

Section 3: Evaluation of the effectiveness of structured teaching program on knowledge regarding prevention of Mosquito borne diseases among National Rural Employment Guarantee Scheme employees

The study revealed that average knowledge scores before and after structured teaching program in the subjects were 14.78 and 23.06. The mean difference of pre-test and post-test was 8.28. The calculated t value was 15.29 with the p value of 0.001. This indicates that improvement in the scores of knowledge regarding prevention of mosquito borne diseases among NREGS employees as a result of structured teaching program is statistically significant at 0.05 level.

Section 4: Association of pre-test knowledge scores and selected socio demographic variables of subjects.

There was no significant association between pre-test knowledge regarding prevention of mosquito borne diseases scores among NREGS employees and selected socio demographic variables.



The result showed that, obtained chi square value, age ($\chi^2 = 1.096$, $p = 0.387$), education ($\chi^2 = 0$, $p = 1.00$), socioeconomic status as per ration card ($\chi^2 = 0.014$, $p = 1.00$), living condition ($\chi^2 = 1.445$, $p = 0.285$), precautions taken ($\chi^2 = 0.408$, $p = 0.641$), previous knowledge ($\chi^2 = 0.403$, $p = 0.327$) were statistically not significant at 0.05 level.

None of the calculated chi square values are greater than their respective table values and are greater

than their respective degree of freedom for the selected socio demographic variables such as age, educational status, socioeconomic status as per ration card, living condition, precautions taken and previous knowledge. Hence H_2 is rejected and there is no significant association between the selected socio demographic variables and pre-test knowledge.

Table 1: The pre-test and post-test knowledge scores.

n= 50

| Scores of Knowledge | Pre-test | | Post-test | |
|---------------------|---------------|----------------|---------------|----------------|
| | Frequency (f) | Percentage (%) | Frequency (f) | Percentage (%) |
| Below average | 5 | 10 | 0 | 0 |
| Average | 45 | 90 | 7 | 14 |
| Good | 0 | 0 | 43 | 86 |

Table 2: Evaluation of the effectiveness of structured teaching program

n=50

| Variables | Mean | SD | Mean Difference | Paired 't' | p Value |
|-----------|-------|------|-----------------|------------|---------|
| Pre-test | 14.78 | 3.10 | 8.28 | 15.29 | 0.001 |
| Post-test | 23.06 | 2.72 | | | |

DISCUSSION

The study was focused to assess the knowledge regarding prevention of mosquito borne disease among NREGS employees at Thenmala panchayat ward V and VI in Kollam and data were collected using structured questionnaire from 50 subjects and analyzed through descriptive and inferential statistics. The findings of the study had been discussed with objectives. It showed that out of 50 subjects in pre-test, 20% of the NREGS employees who participated in the study had below average level of knowledge regarding prevention of mosquito borne diseases and the 80% of subjects had average level of knowledge. In the post-test 10% of subjects scored average level of knowledge and the majority of subjects 90% had scored good level of knowledge regarding prevention of mosquito borne diseases. The computed t value of knowledge regarding prevention of mosquito borne diseases was 15.29 with the p value of 0.001. This indicated that improvement in the scores of knowledge regarding prevention of mosquito borne diseases among NREGS employees as a result of structured teaching program is statistically significant at 0.05 level. So null hypothesis (H_{01}) was rejected and research hypothesis one (H_1) was accepted. There was no significant association between pre-test scores of knowledge and selected Socio demographic variable. The result showed that, obtained chi square value, age ($\chi^2 = 1.096$, $p = 0.387$), education ($\chi^2 = 0$, $p = 1.00$), socioeconomic status as per ration card ($\chi^2 = 0.014$, $p = 1.00$), living condition ($\chi^2 = 1.445$, $p = 0.285$), precautions taken ($\chi^2 = 0.408$, $p = 0.641$) and previous

knowledge ($\chi^2 = 0.403$, $p = 0.327$) were statistically not significant at 0.05 level.

NURSING IMPLICATIONS

Nursing Practice:

- The main focus of nursing practice is to promote and maintain health of individual and community. Knowledge of individual regarding health maintenance also improve the daily practices and that will in turn improve quality of life.
- Nursing staff can organize awareness and identification program regarding mosquito breeding sources helps to practice these preventive measures to avoid mosquito bites and mosquito borne diseases.
- The community health nurse can encourage the NREGS employees to avoid stagnation of water and use of mosquito repellent measures in order to prevent mosquito borne diseases.
- Nurses have a major role in preventive and curative aspects. As in key position, a community health nurse can take initiation to provide awareness program to NREGS employees regarding prevention of mosquito borne diseases so that they can do early identification and prompt management for prevention of mosquito borne diseases.
- Health education programs can be conducted among various groups (ASHA workers, employees, parents, family members) to foster their preventive measures in mosquito borne diseases.



Implication to Nursing Education:

- Students should be encouraged to conduct health education programs by utilizing the lesson plan in hospitals and community health Centres.
- Nurse educators can help the student nurses to update their knowledge on prevention of mosquito borne diseases with recent advancement.
- This study serves as a reference material for students in the library.
- The nursing curriculum should include the preparation and usage of various self- instructional modules, LCD projector teaching programs, information booklets, pamphlet on prevention of mosquito borne disease to educate the nursing students during their training periods.
- In community areas student nurse can periodically conduct mass education programs on prevention of mosquito borne disease.
- The study findings can be utilized by the nurse educators while conducting staff development programs.
- Nurse educators have abundant opportunity to educate the nursing students regarding importance of prevention mosquito breeding sites and sources.
- The nursing curriculum should include more community oriented practical sessions as dry day implementation and other measures.
- The study can be extended for making awareness to all members of community to make use of available measures about mosquito preventive measures effectively.
- The study emphasizes the need for awareness education sessions for each nursing students and nursing personnel.

Implication to Nursing Administration:

- The nurse administrators can influence the staff nurses to incorporate teaching on prevention of mosquito borne diseases along with discharge planning.
- Nurse administrators should organize in-service education and training programs on prevention of mosquito borne diseases while organizing classes and workshops.
- Nurse administrators should assume leadership roles in educating nurses regarding prevention of mosquito borne diseases.

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Implication to Nursing research:

- Study serves as a reference material and good source of related literature for future investigators.
- The nurse investigators can publish the study findings in various regional, national and international journals.
- The study findings can be utilized by the community health nurses as resource for evidence-based practice.
- Nurse investigators can disseminate the findings of the study for further use.
- Critiquing of the recent research findings related to prevention of selected mosquito borne diseases among NREGS can be done to assess the best practice to be incorporated.

LIMITATIONS OF THE STUDY

- The study was limited to National Rural Employment Guarantee Scheme employees who were working in ward V and VI at Thenmala Panchayat, Kollam.
- Study was conducted during the period of COVID 19
- Duration of data collection was limited to 2 weeks only.

RECOMMENDATIONS

- A similar study can be conducted in different settings such as rubber plantations, construction sites, rural and urban areas and then due results can be compared.
- Information booklets and handouts may be developed to enhance knowledge on prevention of mosquito borne diseases.
- Education program may be designed for anganwadi workers ASHA workers, school teachers, Panchayat members and social workers to disseminate knowledge regarding prevention of mosquito borne diseases.

CONCLUSION

The following conclusions were drawn based on the findings of the study. The effectiveness of structured teaching program on knowledge regarding prevention of mosquito borne diseases among National Rural *Employment* Guarantee Scheme employees was found with the help of Paired 't' test. The results showed that Structured Teaching Program was effective in increasing knowledge scores regarding prevention of mosquito borne diseases among National Rural *Employment* Guarantee Scheme employees.



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