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A Study to Assess the Effectiveness of a Planned Teaching Programme on Knowledge Regarding Prevention of Vector Borne Diseases in an Urban Community

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Abstract: ***Vector borne diseases remain a major public health concern in India. This study aimed to assess the effectiveness of a planned teaching programme on knowledge regarding prevention of vector borne diseases among adults in an urban community of Lucknow. A quantitative quasi-experimental one-group pre-test post-test design was adopted among 130 participants selected using convenient sampling. A structured questionnaire assessed knowledge before and after the teaching programme. Post-test knowledge scores were significantly higher than pre-test scores (p < 0.0001), indicating the effectiveness of the intervention.***

Keywords: Vector borne diseases, Planned teaching programme, Knowledge, Prevention, Urban community

1. Background of the Study

Every year more than 1 billion cases and over 1 million deaths from VBDs.In India, 27% population live in malaria high transmission areas.

Out of total AES/JE cases and deaths reported in the country, more than 85% are contributed by five states namely Assam, Bihar, Tamil Nadu Uttar Pradesh and West Bengal. Uttar Pradesh and Assam contribute 81% of total JE burden in the country
Malaria is a parasitic infection transmitted by Anopheline mosquitoes. It causes an estimated 219 million cases globally, and results in more than 400,000 deaths every year. Most of the deaths occur in children under the age of 5 years.

The burden of these diseases is highest in tropical and subtropical areas and they disproportionately affect the poorest populations. Health has been declared as a fundamental human right. In India, most commonly seen vector borne diseases transmitted by mosquitoes are malaria, filariasis, dengue fever, chikungunya etc. They are considered as a major public health problem in the country. Vector control is themajor strategy in the entire above-mentioned vector borne diseases. However, the community involvement in national health programme with the help of health education activity is equally important.

2. Introduction

Vector -borne disease are infection transmitted by the bite of infected arthropod species, such as mosquitoes, ticks, triatomine bugs, sandflies, and blackflies. Arthropod vector is cold-blooded (ectothermic) and thus especially sensitive to climatic factors. Weather influences survival and reproduction rate of Europe and are the best studied diseases vector. vector- borne disease wide spread in associated with climate change, which is reflected in this review[1].Every year there are more than 1 billion cases and over 1 million deaths from vector-borne disease such as malaria, dengue, yellow fever, human African trypanosomiasis, chagas disease. Vector borne disease account for more than 17% of all infectious diseases, causing more than 1 million deaths annually.

According to WHO Malaria is a public health problem in more than 109 countries. Worldwide prevalence of the disease is estimated to be in the order of 300-500million clinical cases each year. As one of the important roles of community health nurse is a community health educator, the need for the hour is a planned teaching programme to create awareness among the people about disease. Thus, the people can gain knowledge related to disease which willhelp to prevent and control the disease. In this way they can improve their own health, health of their families, community and nation.

3. Methodology

A quantitative quasi-experimental one-group pre-test post-test research design was adopted to assess the effectiveness of a planned teaching programme on knowledge regarding prevention of vector-borne diseases among an urban community. The study was conducted at the polyclinic of Command Hospital (Central Command), Lucknow.

The study population comprised adults attending the polyclinic during the data collection period. Using a non-probability convenient sampling technique, 130 participants who fulfilled the inclusion criteria were selected. Ethical clearance was obtained from the Institutional Ethical Committee, and written informed consent was taken from all participants prior to data collection.

Data were collected using a structured, self-administered questionnaire developed based on review of literature and expert consultation. The tool consisted of three sections: socio-demographic variables, knowledge regarding vector-

borne diseases, and knowledge regarding preventive measures. Content validity of the tool and the planned teaching programme was established by subject experts.

A pre-test was conducted to assess baseline knowledge, followed by administration of the planned teaching programme focusing on transmission, symptoms, and primary prevention of vector-borne diseases. A post-test was conducted using the same questionnaire to determine the effectiveness of the intervention.

The collected data were analysed using descriptive statistics such as frequency, percentage, mean, and standard deviation. Inferential statistics using the Wilcoxon signed-rank test were applied to evaluate the effectiveness of the planned teaching programme, with the level of significance set at $p < 0.05$.

4. Result

A total of 130 participants were included in the study. The majority of participants belonged to the age group 41–50 years (27.7%), followed by those aged 51 years and above (26.2%). Male participants constituted 58.5%, while 41.5% were females. With regard to occupation, 46.9% were homemakers, and 34.6% were army personnel. Most participants had completed secondary education (45.4%), and 51.5% belonged to joint families.

Baseline assessment revealed that 92.54% of participants had poor knowledge, while 8.46% had average knowledge regarding prevention of vector-borne diseases during the pre-test. Following the planned teaching programme, a marked improvement was observed, with 69.23% of participants attaining average knowledge and 0.77% attaining good knowledge in the post-test.

The mean pre-test knowledge score was 3.35 ± 1.53, which increased significantly to 6.57 ± 2.35 in the post-test. Statistical analysis using the Wilcoxon signed-rank test showed a highly significant difference between pre-test and post-test knowledge scores ($Z = 9.02$, $p < 0.0001$), indicating the effectiveness of the planned teaching programme in improving knowledge regarding prevention of vector-borne diseases among the urban population.

Demographic Profile, n=13

Table 1: Age wise distribution of cases in study group

Age (Yrs)	No of cases	Percentage
18 – 30	31	23.8
31 – 40	29	22.3
41 – 50	36	27.7
51 & above	34	26.2
Total	**130**	**100**

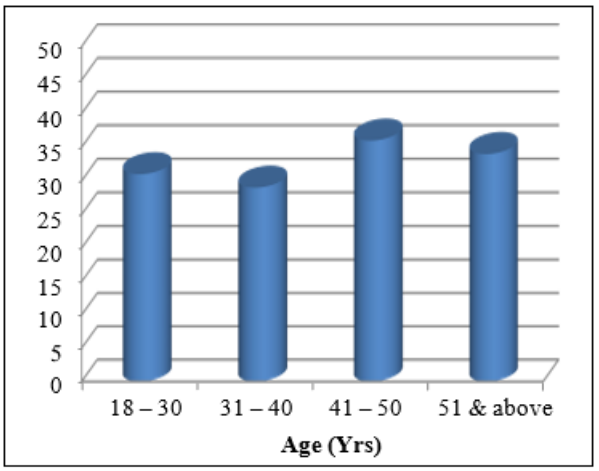

Figure: Distribution of subjects based on age

Table 2: Gender wise distribution of cases in study group

Gender	No of cases	Percentage
Male	76	58.5
Female	54	41.5
Total	**130**	**100.0**

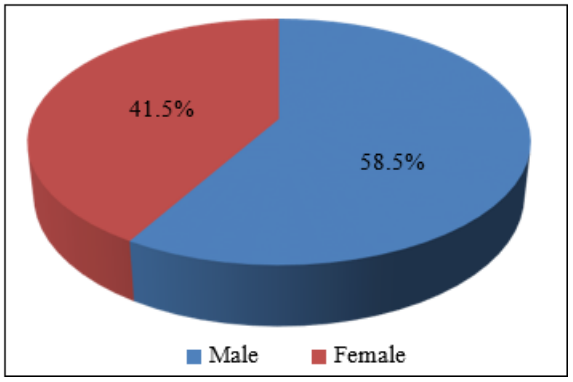

Figure: Distribution of subjects based on Gender

Table 3: Occupation wise distribution of cases in study group

Occupation	No of cases	Percentage
Homemaker	61	46.9
Army personnel	45	34.6
Business	8	6.2
Others	16	12.3
Total	130	100.0

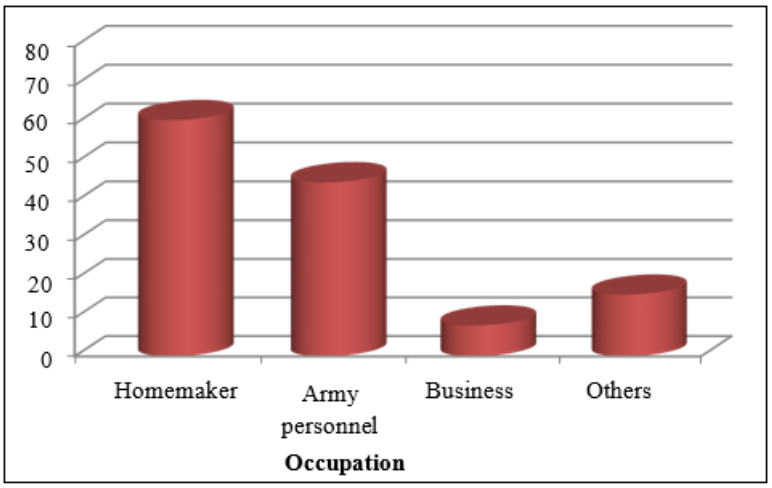

Figure: Distribution of subjects based on Occupation

Table 4: Education wise distribution of cases in study group

Education	No of cases	Percentage (%)
10th pass	59	45.4
12th pass	41	31.5
Graduate/ post graduate	30	23.1
Total	**130**	**100.0**

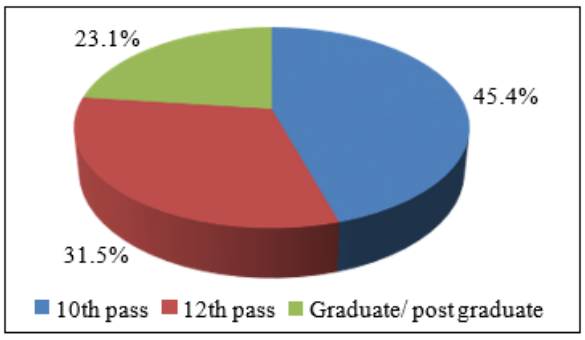

Figure: Distribution of subjects based on Education

Table 5: Monthly income wise distribution of cases in study group

Monthly income (Rs)	No of cases	Percentage
Upto 20000	11	8.5
20001 – 40000	59	45.4
40001 – 60000	44	33.8
60001 & above	16	12.3
Total	**130**	**100.0**

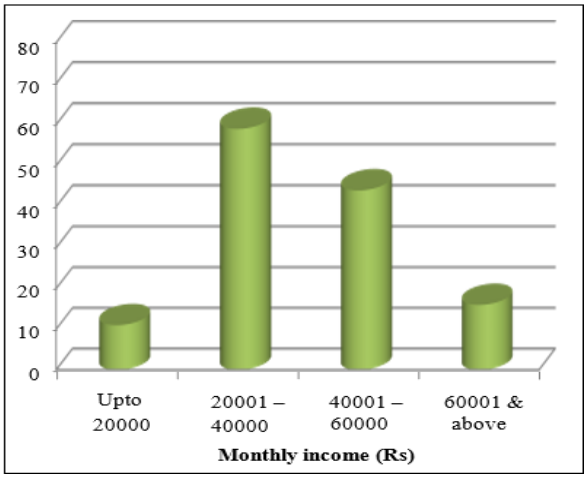

Figure: Distribution of subjects based on the Income

Table 6: Type of family wise distribution of cases in study group

Type of family	No of cases	Percentage
Nuclear	63	48.5
Joint	67	51.5
Total	**130**	**100.0**

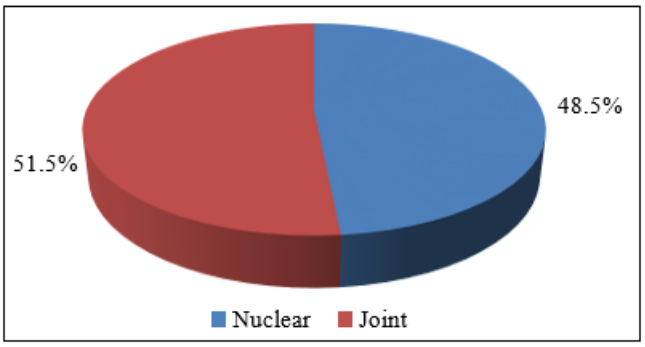

Figure: Distribution of subjects based on the type of the family

Table 7: Knowledge related to vector borne diseases in study group

Knowledge related to mosquito bornediseases	No of cases	Percentage
Yes	114	87.7
No	16	12.3
Total	**130**	**100.0**

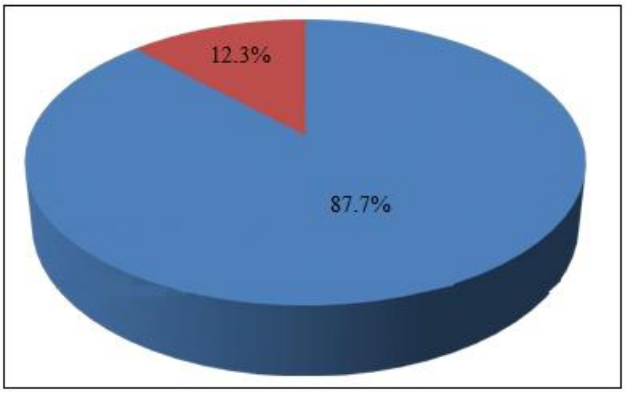

Figure: Distribution of subjects based on the knowledge related to vector borne disease

Section 2: Assessing The Pre-Test and Post Test Knowledge Regarding Vector Borne Disease

Table 8: Assess the pre and posttest knowledge regarding vector borne disease among the urban population in study group

Knowledge score	Pre-test (%)	Post test (%)
0 – 5 (Poor)	119 (91.54)	39 (30)
6 – 10 (Average)	11 (8.46)	90 (69.23)
11 – 15 (Good)	0	1 (0.77)
Total	130 (100)	130 (100)

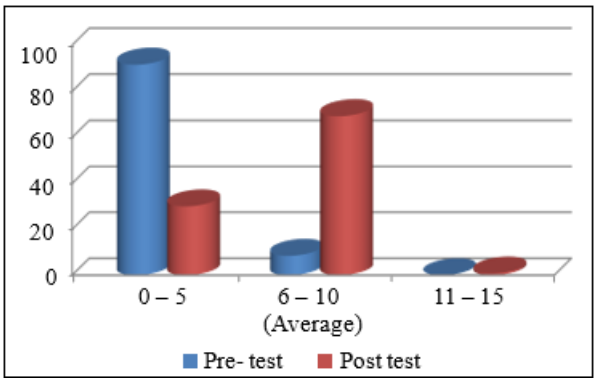

Figure: Distribution of subjects based on the pretest and posttest knowledge related to vector borne diseases

Section 3: Effectiveness of Planned Teaching Programme in the StudyPopulation

Table 9: Effectiveness of planned teaching program on knowledge scoreregarding vector born disease among the urban population in study group

Parameter	Pre test		Post test		Wilcoxon Z Value	P Value
	Mean	SD	Mean	SD		
Knowledge score	3.35	1.539	6.57	2.359	9.02	<0.0001

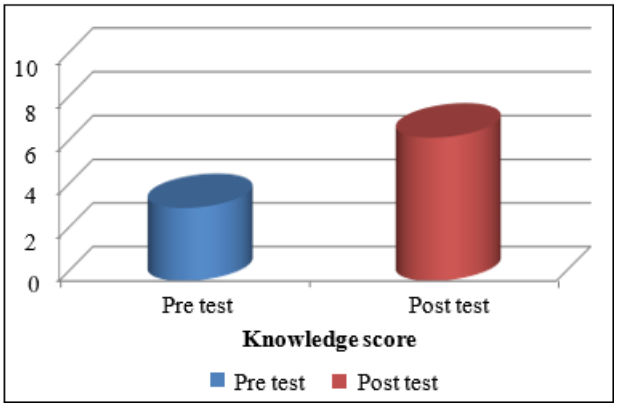

Figure: Comparison of subjects based on effectiveness of planned teachingprogramme in pretest and post test

5. Discussion

The present study revealed that although a majority of participants (87.7%) had heard about mosquito-borne diseases, most demonstrated poor knowledge in the pre-test (91.54%). This finding is consistent with several community-based studies conducted in urban areas, where awareness was present but in-depth knowledge regarding prevention and control measures was inadequate. Similar studies have reported that factors such as education level, occupation, and socio-economic status influence baseline knowledge levels.

After the implementation of the planned teaching programme, there was a significant improvement in knowledge scores, with a marked shift from poor to average and good categories. This finding aligns with previous interventional studies that demonstrated the effectiveness of structured teaching programmes, health education sessions, and awareness campaigns in improving knowledge about vector-borne diseases. Many researchers have reported statistically significant differences between pre-test and post-test scores ($p < 0.05$), supporting the impact of educational interventions.

The percentage change of 96.12% in the present study indicates substantial improvement, which is comparable to other similar quasi-experimental studies. Therefore, consistent with existing literature, the study confirms that structured health education is an effective strategy to enhance knowledge and promote preventive practices among urban populations.

6. Conclusion

The threat of emerging vector borne diseases is serious and resurgence is usually associated with increased vector population densities resulting from alterations to the environment. Hence, educating the public at community level about vector borne diseases is pivotal. The present study reveals that the group (92.54) % were having poor level of knowledge regarding prevention and control of vector borne diseases during pretest. However, the planned teaching programme showed significantly increase in average knowledge of group (69.23 %) on prevention and control of vector borne diseases after the post test.

The present study assessed the effectiveness of a planned teaching programme on knowledge regarding vector-borne diseases among the urban population. The findings revealed that although a majority of participants had heard about mosquito-borne diseases, most had poor knowledge in the pre-test. After the implementation of the structured teaching programme, there was a marked improvement in knowledge levels, with a significant shift from poor to average and good categories. The post-test mean knowledge score was considerably higher than the pre-test mean score, and the paired 't' test showed a statistically significant difference ($p < 0.05$). This indicates that the planned teaching programme was effective in improving knowledge regarding prevention and control of vector-borne diseases among the selected urban population.

7. Recommendations

Regular structured teaching programmes should be organized at the community level to improve awareness about vector-borne diseases. Similar studies may be conducted with a larger sample size to enhance generalization of findings. Comparative studies between urban and rural populations can be undertaken to assess differences in knowledge levels. Longitudinal studies are recommended to evaluate long-term retention of knowledge. Health education regarding vector-borne diseases should be integrated into primary health care

services, and community health workers should be actively involved in awareness and prevention activities.

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