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RESEARCH ARTICLE

ROLE OF ECO HEALTH IN PREVENTION OF MOSQUITO BORNE DISEASES IN SELECTED URBAN AREAS OF BAGALKOT

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ABSTRACT

Background; Mosquito borne diseases is a growing urban problem because of unplanned urbanization, industrialization and excessive population growth coupled with rural to urban migration. For developing a suitable and effective health education strategy, it is inevitable to understand the level of knowledge of urban women regarding role of eco health in prevention of mosquito borne diseases.

Materials & Methods; Non probability sampling technique was used for the present study comprises of 200 women in the age group 20 years and above who are residing in selected urban areas of Bagalkot i.e 100 women from teggi layout vidyagiri Bagalkot will be selected for experimental group and 100 women from vinayak nagar old Bagalkot will be selected for control groups.

Results; Findings about the comparison of level of pre-test & post test knowledge regarding role of eco-health in prevention of mosquito borne diseases among women in experimental group shows that, in pre-test the majority (78 %) of women had Inadequate level of knowledge and 22 % percent of them had moderate level of knowledge. In post-test, the most (82%) of women had moderate level of knowledge and remaining 18 percent of them had adequate level of knowledge. Where as in the control group, in pre-test the majority (85 %) of women had Inadequate level of knowledge and 15 % percent of them had moderate level of knowledge. In post-test, most (81%) of women had inadequate level of knowledge and remaining 19 percent of them had moderate level of knowledge.

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INTRODUCTION

Vector borne diseases (VBDs) account for 17% of the estimated global burden of all infectious diseases. Malaria, the most deadly VBD, caused an estimated 627,000 deaths in 2012. In recent years they have emerged as a major public health problem in India, particularly dengue fever, Japanese encephalitis and malaria now occur in epidemic proportions almost on an annual basis causing considerable morbidity and mortality (Searo, 2012). The world's fastest growing VBD is dengue, with a 30-fold increase in disease incidence over last 50 years. Every year there are more than 1 billion cases and over 1 million deaths from VBDs. In India, 27% population live in malaria high transmission area.

The diseases are commonly in tropical and subtropical regions and places where access to safe drinking water and sanitation system is problematic. They are on the rise because of failure of these existing methods of control of vector and VBDs and the climate change. A steep rise of VBDs is due to several factors such as selection of insecticide resistant vector population, drug resistant parasite population, and lack of effective vaccines against VBDs (Gupta et al., 2012). Recently, it has been suggested that VBDs incidence is between 9 and 50 times greater than reported with approximately 13 fold under estimation of malaria-related mortality (Das et al., 2012). Vector is an important link in transmission of VBDs and thus, protection from vector serves as one of the best strategies for prevention in population. Environmental pollution, public health hazard, and insecticide resistant vector population indicate that the insecticides are no longer a sustainable control method of vectors and VBDs. Personal protection measures (PPMs) have become important tool against VBDs.

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A variety of PPMs are available including repellent creams, mosquito nets, mosquito coils, liquid repellents, electric rackets, mats, smokeless coils, intense sticks, and naphthalene balls. Under national VBD control program, government has introduced insecticide treated nets for the endemic communities (Pandit et al., 2010). A statistical information has been given by district vector borne diseases by 2012 dengue in 94 cases identified in Bagalkot district in urban area 06 cases, in 2013 216 cases identified in Bagalkot district in urban area 21 cases, by 2014 35 cases identified in Bagalkot district in urban area 04 cases similarly Chikumgunnya in 2012 02 cases identified in Bagalkot district, in 2013 no cases were found and by 2014 11 cases identified in Bagalkot district in urban area 06 cases so presently dengue fever creating dangerous problem in Bagalkot district (District vectore borne officer Mini vidhan souda Navanagar Bagalkot 587103)

Problem Statement

“A Study to evaluate the Effectiveness of Planned Teaching Programme on Knowledge regarding Role of Eco-Health in Prevention of Mosquito-Borne Diseases Among Women in Selected Urban Area of Bagalkot Karnataka”.

Objective of the Proposed Research

- To assess the level of the knowledge regarding role of eco-health in prevention of mosquito borne diseases among women of experimental and control group.
- To compare the pretest and post test level of knowledge of women of both experimental and control group.
- To determine the effectiveness of Planned teaching programme by comparing pretest and post test knowledge scores of experimental group.
- To determine the effectiveness of Planned teaching programme by comparing post test knowledge scores of experimental and control group women.
- To associate the pre-test knowledge levels of women with selected socio - demographic variables of both experimental and control group women.

Hypotheses

Hypotheses will be tested at 0.05 level of significance.

H1: There is a significant difference between pre-test level of knowledge between experimental group and control group subjects.

H2: There is a significant difference between post-test level of knowledge between experimental group and control group subjects.

H3: There is a significant difference between mean pre-test and post test knowledge scores on role of eco-health in prevention of mosquito borne diseases among women of experimental group and control group.

H4: There is a significant difference between mean post-test knowledge scores of women of experimental group and control group subjects.

H5: There is a significant association between pre-test knowledge levels regarding role of eco health in prevention of mosquito borne diseases and selected demographic variables of women of both experimental group and control group.

Assumptions

The study assumes that

- The study assumes that women have some knowledge about mosquito borne diseases.
- Planned teaching programme is one of the means which may be effective in improving the level of knowledge regarding role of eco-health in prevention of mosquito borne disease among women.

RESEARCH METHODOLOGY

Research approach

Research approach is an umbrella that covers the basic procedure for conducting research evaluative approach was used in the study. Evaluative research is an applied form of research that involves finding out how well a programme, practice or policy is working. Its goal is to assess or evaluate the success of the programme (Rosenthal, 1991). Evaluative approach was used in the present study to test the effectiveness of the PTP on knowledge regarding role of eco-health in prevention of mosquito borne disease among women.

Research design

The Research Design is the conceptual structure within which the research is conducted; it constitutes the blue print for the collection, measurement and analysis of data. It includes an outline of what the research will do from writing the hypothesis and its operational implication to find analysis of data (Fawcett, 2004). In the present study quasi experimental non equivalent control group design was selected to assess the effectiveness of planned teaching programme on knowledge of women regarding role of eco-health in prevention of mosquito-borne diseases.

Table 1. Quasi experimental non equivalent control group design

Experimental group	O1	X	O2
Control group	O1	-	O2

O1: Administration of structured questionnaire for assessing the level of knowledge among women of both experimental group and control group regarding role of eco-health in prevention of mosquito borne diseases.

X: Planned teaching programme on knowledge regarding role of eco-health in prevention of mosquito borne diseases on the same day after the pre-test only to experimental group.

O2: Administration of structured questionnaire for assessing the level of knowledge among women of both experimental group and control group regarding role of eco-health in prevention of mosquito borne diseases after seven days from the Planned teaching programme.

Setting of the study

Setting is a physical location and condition in which data collection takes place (Talbot, 1999). The setting of the study is selected urban areas of Bagalkot (teggi layout vidyagiri Bagalkot and vinayak nagar old Bagalkot).

Population

The term population refers to the aggregate or totality of all subjects or numbers that conform to a set of specifications (Niewiadomy, 1998).

The target population for the study includes women with age group of 20 year and above those who meet inclusion criteria residing in selected urban areas of Bagalkot.

Sample

Sample consists of the subject of the population selected to participate in the research study. Sampling refers to the process of selecting the portion of population to represent the entire population (Basavanthappa, 2006). The sample for the present study comprises of 200 women in the age group 20 years and above who are residing in selected urban areas of Bagalkot i.e 100 women from teggi layout vidyagiri Bagalkot will be selected for experimental group and 100 women from vinayak nagar old Bagalkot will be selected for control groups.

Sampling technique

According to Polit and Hungler sampling refers to the process of selecting the portion of population to represent the entire population. Non probability sampling technique was considered appropriate for this study. Non probability samples were selected based on the judgments of research to achieve particular objective of the researcher at hand. Purposive sampling technique is a type of non probability sampling, which was found to be appropriate for the study.

Inclusion criteria

- Women of urban area those who are willing to participate.
- Women in the age group of 20 year and above
- Women who can Read and understand Kannada.

Exclusion criteria

- Women working in the field of control and prevention of vector borne diseases.
- Medical and paramedical professional women

Variables under study

Variables are qualities, properties or characteristics of persons, things or situation that changes or vary (Stoll, 2007)

Dependent Variable:- Dependent variable is the response, behaviour or outcome that predicts or explains in research. Changes in the dependent variables are presumed to be caused by independent variable (Stoll, 2007). In this study knowledge of women regarding the role of eco-health in prevention of mosquito-borne disease was the dependent variable.

Independent Variable:-An Independent variable is a variable, which influences the dependent variable (Stoll, 2007). In this study PTP on knowledge regarding role of eco-health in prevention of mosquito-borne disease was the independent variable.

Extraneous variable

An uncontrolled variable that greatly influences the result of the study is called as extraneous variable (Stoll, 2007). In this study extraneous variables were age, educational status, religion, occupation, monthly income, type of family, type of house, past history of mosquito-borne disease, area of stagnant water, source of information, precautions against mosquito borne diseases & waste management practice.

RESULTS

Organization of findings

The data were organized, analyzed and presented in following sections.

PART I

Frequency and percentage distribution of the socio demographic variables.

PART II

Analysis of pre test knowledge and post test knowledge level of respondents on role of eco-health in prevention of mosquito-borne diseases.

PART III

Evaluation of effectiveness of the PTP on knowledge regarding role of eco-health in prevention of mosquito-borne diseases.

PART IV

Association between pre test knowledge and socio demographic variables. Findings about the comparison of level of pre-test & post test knowledge regarding role of eco-health in prevention of mosquito borne diseases among women in experimental group shows that, in pre-test the majority (78 %) of women had Inadequate level of knowledge and 22 % percent of them had moderate level of knowledge. In post-test, the most (82%) of women had moderate level of knowledge and remaining 18 percent of them had adequate level of knowledge. Where as in the control group, in pre-test the majority (85 %) of women had Inadequate level of knowledge and 15 % percent of them had moderate level of knowledge. In post-test, most (81%) of women had inadequate level of knowledge and remaining 19 percent of them had moderate level of knowledge. The above table no 03 summarizes that there is no significant difference in pre test knowledge levels [$\chi^2 = 1.62, P > 0.05$] between experimental group and the control group amounting to proper selection and distribution of subjects to both the groups

Hence **H1:** There is a significant difference between pre-test level of knowledge between experimental group and control group subjects is rejected. Analysis clearly depicts that, there is a significant difference between post-test knowledge levels [$\chi^2 = 138.3, P < 0.05$] of women in experimental group and control group

Hence **H2** There is a significant difference between post-test level of knowledge between experimental group and control group subjects is accepted. Hence clearly suggest that women of experimental group had experienced gain in knowledge in post Intervention assessment compared to control group. Thus the administration of PTP on knowledge regarding role of eco-health in prevention of mosquito borne diseases among women of experimental group was successful in increasing the level of knowledge regarding prevention of mosquito borne diseases. The above table no 04 reveals that, there is a significant difference between mean pre test [42.40 +_ 6.53] and in post test [68.80+_ 7.18] at 0.05 level of significance [t=29.4358, p<0.05] knowledge scores of experimental group [t=-27.8027, p<0.05].

PART I

SECTION-A

Table-02 Frequency and percentage distribution of the socio demographic variables

Table no 02 : Distribution of women in experimental group and control groups by socio-demographic characteristics N = 100 + 100

Factors	Experimental group	%	Control group	%
Age groups				
21-30yrs	12	12.00	13	13.00
31-40yrs	19	19.00	27	27.00
41-50yrs	50	50.00	42	42.00
51-60yrs	19	19.00	18	18.00
Educational status				
Uneducated	26	26.00	24	24.00
Primary	27	27.00	31	31.00
Secondary	23	23.00	26	26.00
PUC/diploma	18	18.00	11	11.00
Graduate and above	6	6.00	8	8.00
Religions				
Hindu	62	62.00	58	58.00
Muslims	24	24.00	27	27.00
Christian	14	14.00	15	15.00
Occupations				
House wife	33	33.00	33	33.00
Labourer	39	39.00	35	35.00
Government employee	15	15.00	16	16.00
Private employee	6	6.00	11	11.00
Self employed	7	7.00	5	5.00
Income groups				
<3000	32	32.00	24	24.00
3001-5000	19	19.00	32	32.00
5001-7000	29	29.00	29	29.00
7001+	20	20.00	15	15.00
Type of family				
Nuclear	61	61.00	69	69.00
Joint	39	39.00	31	31.00
Type of house				
Kutchha	68	68.00	75	75.00
Pucca	32	32.00	25	25.00
Type of occupancy				
rented	31	31.00	39	39.00
Own	69	69.00	61	61.00
Past history-mosquito-borne diseases				
Yes	29	29.00	33	33.00
No	71	71.00	67	67.00
Area of stagnant water				
Present	28	28.00	33	33.00
Absent	72	72.00	67	67.00
Sources of information				
Mass media	49	49.00	44	44.00
Health professionals	15	15.00	18	18.00
Friends/relatives	24	24.00	23	23.00
Others	12	12.00	15	15.00
Precautions against mosquito-borne diseases				
Yes	72	72.00	73	73.00
No	28	28.00	27	27.00
Waste management practice				
Yes	63	63.00	70	70.00
No	37	37.00	30	30.00
Total	100	100.00	100	100.00

Hence **H3**: There is a significant difference between mean pre-test and post test knowledge scores on role of eco-health in prevention of mosquito borne diseases among women of experimental group and control group stated is accepted

The above table no 05 reveals that, there is a significant difference between mean pre test [40.63+ 7.82] and in post test [41.83+ 5.69] knowledge scores of control group [$t=$ -1.7842, $p>0.05$].

Hence **H3**: There is a significant difference between mean pre-test and post test knowledge scores on role of eco-health in prevention of mosquito borne diseases among women of experimental group and control group stated is rejected. The above table no 06 reveals that, there was a significant difference between mean post test knowledge scores of experimental group [68.80+ 7.18] and in control group [41.83+ 5.69] at 0.05 level of significance [$t=$ 29.4358, $p<0.05$].

PART II

SECTION A

Table no 03. Comparison of levels of knowledge at pretest and posttest by chi-square test

Levels of knowledge	Experiment group	%	Control group	%	Total	Chi-square	p-value
Pre test							
Inadequate level	78	78.00	85	85.00	163	1.6252	0.2020
Moderate level	22	22.00	15	15.00	37		
Adequate level	0	0.00	0	0.00	0		
Posttest							
Inadequate level	0	0.00	81	81.00	81	138.2972	0.0001*
Moderate level	82	82.00	19	19.00	101		
Adequate level	18	18.00	0	0.00	18		
Total	100	100.00	100	100.00	400		

*p<0.05

PART III

SECTION A

Table no 04. Comparison of pretest and posttest total knowledge and its component scores in experiment group by dependent t test

Variables	Time	Mean	SD	Mean Diff.	SD Diff.	Paired t	p-value
Knowledge towards role of eco health	Pretest	41.11	10.56				
	Posttest	69.44	10.43	-28.33	13.98	-20.2653	0.0001*
Knowledge towards mosquito borne diseases	Pretest	42.56	11.82				
	Posttest	68.00	14.41	-25.44	20.73	-12.2744	0.0001*
Knowledge role of eco health in prevention of mosquito borne diseases	Pretest	49.67	29.77				
	Posttest	67.33	29.20	-17.67	42.76	-4.1316	0.0001*
Total knowledge towards prevention of mosquito borne diseases	Pretest	42.40	6.53				
	Posttest	68.80	7.18	-26.40	9.50	-27.8027	0.0001*

*p<0.05

SECTION B

Table no 05. Comparison of pretest and posttest total knowledge and its component scores in control group by dependent t test

Variables	Time	Mean	SD	Mean Diff.	SD Diff.	Paired t	p-value
Knowledge towards role of eco health	Pretest	39.56	9.39				
	Posttest	39.89	7.51	-0.33	6.55	-0.5089	0.6120
Knowledge towards mosquito borne diseases	Pretest	40.33	14.27				
	Posttest	43.78	13.01	-3.44	18.73	-1.8388	0.0689
Knowledge role of eco health in prevention of mosquito borne diseases	Pretest	48.00	28.55				
	Posttest	47.67	28.92	0.33	3.33	1.0000	0.3197
Total knowledge towards prevention of mosquito borne diseases	Pretest	40.63	7.82				
	Posttest	41.83	5.69	-1.20	6.73	-1.7842	0.0775

*p<0.05

SECTION C

Table 06. Comparison of experiment and control groups with respect to total knowledge and its component in posttest scores by independent t test

Variables	Experimental group		Control group		t-value	P-value
	Mean	SD	Mean	SD		
Knowledge towards role of eco health	41.11	10.56	39.56	9.39	1.1008	0.2723
Knowledge towards mosquito borne diseases	68.00	14.41	43.78	13.01	12.4775	0.0001*
Knowledge role of eco health in prevention of mosquito borne diseases	67.33	29.20	47.67	28.92	4.7857	0.0001*
Total knowledge towards prevention of mosquito borne diseases	68.80	7.18	41.83	5.69	29.4358	0.0001*

*p<0.05

Hence **H4**: There is a significant difference between mean post-test knowledge scores of women of experimental group and control group subject stated is accepted. Analysis related to association between pretest knowledge levels and socio demographic variables of women of both experimental group and control group shows that, significant association was found between pre test knowledge and socio demographic variables Past history-mosquito-borne diseases [$\chi^2 = 47.6420$, $P < 0.05$], precautions against mosquito-borne diseases [$\chi^2 = 17.2200$, $P < 0.05$], and waste management practice [$\chi^2 = 22.8700$, $P < 0.05$], and there was no significant association

between found between pre test knowledge and other socio demographic variables.

Hence **H5**: There is a significant association between pre-test knowledge levels regarding role of eco health in prevention of mosquito borne diseases and selected socio demographic variables of women of both experimental group and control group, is accepted to the demographic variables like past history-mosquito-borne diseases, precautions against mosquito-borne diseases, and waste management practice and rejected for remaining socio demographic variables. Analysis related to association between pretest knowledge levels and

PART IV

SECTION A

Table no 07. Association between socio-demographic characteristics with total pretest levels of knowledge in total samples (experimental group + control group) N=100+100

Sl no	socio-demographic variables	Chi-square value	p-value	Significance
1	Age	6.6640	0.0830	P>0.05, NS
2	Educational status	2.1430	0.7090	P>0.05, NS
3	Religions	0.8810	0.6440	P>0.05, NS
4	Occupations	2.3200	0.6770	P>0.05, NS
5	Income groups	0.1860	0.9800	P>0.05, NS
6	Type of family	0.1610	0.6890	P>0.05, NS
7	Type of house	0.0480	0.8260	P>0.05, NS
8	Type of occupancy	0.1610	0.6890	P>0.05, NS
9	Past history-mosquito-borne diseases	47.6420	0.0001*	P<0.05, S
10	Area of stagnant water	0.0800	0.7770	P>0.05, NS
11	Sources of information	1.0820	0.7820	P>0.05, NS
12	Precautions against mosquito-borne diseases	17.2200	0.0001*	P<0.05, S
13	Waste management practice	22.8700	0.0001*	P<0.05, S

*p<0.05

Section B

Table no 08. Association between socio-demographic characteristics with total pretest levels of knowledge in experiment group N=100

Sl no	socio-demographic variables	Chi-square value	p-value	Significance
1	Age	2.6450	0.4500	P>0.05, NS
2	Educational status	3.1440	0.5340	P>0.05, NS
3	Religions	0.0340	0.9830	P>0.05, NS
4	Occupations	0.6900	0.9530	P>0.05, NS
5	Income groups	1.4460	0.6950	P>0.05, NS
6	Type of family	0.0430	0.8350	P>0.05, NS
7	Type of house	0.2900	0.5900	P>0.05, NS
8	Type of occupancy	0.1830	0.6690	P>0.05, NS
9	Past history-mosquito-borne diseases	69.0540	0.0001*	P<0.05, S
10	Area of stagnant water	0.0070	0.9310	P>0.05, NS
11	Sources of information	1.7250	0.6310	P>0.05, NS
12	Precautions against mosquito-borne diseases	10.9690	0.0010*	P<0.05, S
13	Waste management practice	16.5650	0.0001*	P<0.05, S

*p<0.05

Section C

Table no 09. Association between socio-demographic characteristics with total pretest levels of knowledge in control group N=100

Sl no	socio-demographic variables	Chi-square value	p-value	Significance
1	Age	6.7810	0.0790	P>0.05, NS
2	Educational status	5.4450	0.2450	P>0.05, NS
3	Religions	1.9880	0.3700	P>0.05, NS
4	Occupations	2.3420	0.6730	P>0.05, NS
5	Income groups	1.2550	0.7400	P>0.05, NS
6	Type of family	0.0450	0.8320	P>0.05, NS
7	Type of house	0.0260	0.8720	P>0.05, NS
8	Type of occupancy	1.5240	0.2170	P>0.05, NS
9	Past history-mosquito-borne diseases	1.4910	0.2220	P>0.05, NS
10	Area of stagnant water	0.3910	0.5320	P>0.05, NS
11	Sources of information	1.3470	0.7180	P>0.05, NS
12	Precautions against mosquito-borne diseases	6.5270	0.0110*	P<0.05, S
13	Waste management practice	7.5630	0.0060*	P<0.05, S

*p<0.05

socio demographic variables of women of both experimental group shows that, significant association was found between pre test knowledge and socio demographic variables Past history-mosquito-borne diseases [$\chi^2 = 69.0540$, $P < 0.05$], precautions against mosquito-borne diseases [$\chi^2 = 10.9690$, $P < 0.05$], and waste management practice [$\chi^2 = 16.5650$, $P < 0.05$], and there was no significant association between found between pre test knowledge and other socio demographic variables.

Hence **H5**: There is a significant association between pre-test knowledge levels regarding role of eco health in prevention of

mosquito borne diseases and selected socio demographic variables of women of both experimental group and control group, is accepted to the demographic variables like Past history-mosquito-borne diseases, Precautions against mosquito-borne diseases, and Waste management practice and rejected for remaining socio demographic variables. Analysis related to association between pretest knowledge levels and socio demographic variables of women of both experimental group shows that, significant association was found between pre test knowledge and socio demographic variables precautions against mosquito-borne diseases [$\chi^2 = 6.5270$, $P < 0.05$], and waste management practice [$\chi^2 = 7.5630$, $P <$

0.05], and there was no significant association between found between pre test knowledge and other socio demographic variables.

Hence **H5**: There is a significant association between pre-test knowledge levels regarding role of eco health in prevention of mosquito borne diseases and selected socio demographic variables of women of both experimental group and control group, is accepted to the demographic variables like precautions against mosquito-borne diseases, and waste management practice and rejected for remaining socio demographic variables.

Conclusion

Hence the study concluded with following findings about the comparison of level of pre-test & post test knowledge regarding role of eco-health in prevention of mosquito borne diseases among women in experimental group shows that, in pre-test the majority (78 %) of women had Inadequate level of knowledge and 22 % percent of them had moderate level of knowledge. In post-test, the most (82%) of women had moderate level of knowledge and remaining 18 percent of them had adequate level of knowledge. Where as in the control group, in pre-test the majority (85 %) of women had Inadequate level of knowledge and 15 % percent of them had moderate level of knowledge. In post-test, most (81%) of women had inadequate level of knowledge and remaining 19 percent of them had moderate level of knowledge. Analysis related to association between pretest knowledge levels and socio demographic variables of women of both experimental group and control group shows that, significant association was found between pre test knowledge and socio demographic variables Past history-mosquito-borne diseases [$\chi^2 = 47.6420$, $P < 0.05$], precautions against mosquito-borne diseases [$\chi^2 = 17.2200$, $P < 0.05$], and waste management practice[$\chi^2 = 22.8700$, $P < 0.05$], and there was no significant association between found between pre test knowledge and other socio demographic variables

Recommendations

Based on findings of the study the following recommendations are made - A similar study can be undertaken with a large sample to generalize the findings

- A similar study can be undertaken on patients with mosquito-borne diseases.
- A comparative study can be conducted to assess the knowledge of urban and rural women regarding knowledge on eco-health approach.
- Same study can be conducted by using different teaching modalities

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