

IMPACT OF EDUCATIONAL INTERVENTION REGARDING MOSQUITO BORNE DISEASES AND THEIR CONTROL MEASURES AMONG THE LINK WORKERS OF URBAN HEALTH CENTERS (UHCs) OF AHMEDABAD CITY

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ABSTRACT

Background: In urban area link workers are playing key role in implementing anti-larval measures and behaviour change communication at community level to prevent and control mosquito borne diseases.

Objectives: To check baseline knowledge of link workers regarding mosquito borne diseases and control measures and assess their knowledge 14 days after single educational interventional training.

Methodology: All 274 link workers of 17 selected UHCs out of total 57 UHCs were taken as study population and their baseline knowledge regarding mosquito borne diseases and mosquito control measures was assessed by questionnaire. Single educational training for 45 minutes was given to groups of link workers and their post- intervention knowledge for same was assessed after 14 days. Mean, Wilcoxon sign-rank test were applied.

Results: Mean age of link workers was 31.3 ± 4.8 years. The knowledge regarding Chikungunya, Dengue and Malaria was mosquito borne diseases was respectively 55.5%, 87.9% and 95.5% which was increase after intervention to 100%. But 14.4% did not know filariasis is mosquito borne disease even after training. All link workers know about the chemical (Temephos) used for mosquito control (100%) but knowledge of proper temephos dose for different volume of water containers was significantly improved after intervention. The overall knowledge regarding mosquito & mosquito control measures was significantly improved after intervention (p value <0.05).

Conclusion: Even though link workers were involved in anti-larval activities since from many years, many link workers had poor knowledge regarding the mosquito borne diseases and control measures.

Keywords: link workers, mosquito borne diseases, temephos

INTRODUCTION

In urban area link workers are playing key role in implementing anti-larval measures and behaviour change communication at community level to prevent and control vector borne diseases. They were recruited under Reproductive and Child Health phase II (RCH phase II). These anti-larval activities were assigned to link workers of Urban Health Centers (UHCs). Link workers encourage client behavior change through door to door visit of their area when they are doing temephos

application every monthly in each area. Link workers are the persons who come directly in contact with people. They are the key person to induce the behaviour change in people. Baseline knowledge of link worker was poor, as they are part time worker without Auxiliary training course for such activities related to their duties. In Ahmedabad city, there are 57 UHCs, and total 1027 Link workers. Anti-larval measures were started in Ahmedabad city after an epidemic of Chickungunya in 2006 in Ahmedabad city.

The National Malaria Control Programme is currently using anti-larval measures in the urban areas as a primary method of vector control¹. These anti larval measures are not only effective but also simple, cost effective, and environment friendly. This is done by avoiding or eliminating the clean water collections². As they do not have background of entomological knowledge, assessment about mosquito borne diseases and control measures among link workers of Ahmedabad city and education intervention for the same may help to improve their knowledge.

OBJECTIVES

1. To assess knowledge of link workers about mosquito borne diseases and control measures by the pre-intervention questionnaire.
2. To give training and assess improvement in knowledge 14 days after single educational training.

METHODOLOGY

First of all, 57 UHCs of Ahmedabad city was enlisted and then 17 UHCs out of total 57 UHCs were selected through simple random sampling method. All link workers of 30% UHCs of total UHCs were covered for training because link workers were busy as corporation staff and due to some administrative reasons; it was not possible to cover all UHCs during study period. All 274 link workers of selected UHCs were taken as study population. Thereafter baseline knowledge of link workers regarding mosquito borne diseases and mosquito control measures was assessed by questionnaire. Questionnaire was converted in vernacular language for assessment. Single educational interventional training for 45 minutes was given to groups of link workers of 17 selected UHCs in their respective UHCs by with lecture, charts, demonstration and discussion with an average group of 15 link workers. Seventeen (17) educational training sessions were held to cover all selected UHCs. Post- intervention knowledge of link workers for the same was assessed after 14 days by same questionnaire in their respective UHCs. Study was conducted during the period from 1st April 2011 to 31st September, 2011. Verbal consent of all link workers was taken. Pre and post training assessment was done by scoring method and

also mean, standard deviation, Wilcoxon sign rank test were applied

RESULTS

Majority of link workers (50%) are in 25-35 years of their age. Mean age of link workers is 31.3 ± 4.8 years. 73% link workers had completed their higher secondary education or above.

Shown in figure 1, the knowledge regarding Chikungunya, Dengue and Malaria is mosquito borne diseases was respectively 55.5%, 87.9% and 95.5% which was increase after intervention to 100%. But 14.4% did not know filariasis is mosquito borne disease even after training. 81.0% link workers had knowledge that Aedes is mosquito which was increased to 95.3% after training. 55.5% and 27.0% of link workers respectively had knowledge that Anopheles, Culex are mosquitoes which was increased to 92.3% and 81.1% respectively after intervention. There was significant increase in knowledge regarding the life span of mosquito from 36.5% to 81.0%. Knowledge of link workers regarding biting pattern of Aedes, Anopheles, Culex was increased from 59.1% to 66.4%, 62.8% to 68.6%, 39.4% to 73.4% respectively after intervention training. 34.7% and 23.4% link workers had knowledge of the breeding places of Anopheles and Culex which was increased to 49.3% and 65.3% respectively. In present study, all link workers had seen larvae (100%).

As in table 1, questions assess the cognitive domain of link workers about mosquito borne disease and control measures, 14 days after the training, post training mean score was improved to 19.2 (85.3%) from pre training mean score 12.0 (53.3%) out of maximum score 22.5 (p value <0.0001). There was significant increase in mean score of knowledge regarding mosquito control measures from 1.9 to 3.3 (p value < 0.005), mean score of knowledge regarding breeding places of Aedes from 1.8 to 2.8 (p value < 0.005). Knowledge regarding anti larval method like chemical method was 79.2% increased after intervention to 94.5% and also knowledge about other methods like environmental control (34.7%), biological method (54.7%), space spray (83.2%), mosquito net (71.9%), repellent for personal protection (53.3%) which was improved after training 93.4%, 91.6%, 97.1%, 95.6% and 84.7% respectively. 93.9% link workers had knowledge that ideal color of mosquito net is white and it was increased to

100% after intervention. Link workers had enough knowledge about the various resting sites of mosquito such as dark corners, behind doors and photo-frames, under furniture, upper part of wall etc. and mean score was also

increased from 60% to 95% after intervention. Mean score of knowledge of resting sites of mosquitoes increased from 1.2 to 1.9 after intervention (p value < 0.001).

Table 1: Knowledge about types of mosquito, their biting pattern, resting habit, their breeding places and mosquito borne diseases

Questions	Pre intervention	Post intervention	P value*
	Mean score \pm SD	Mean score \pm SD	
Types (Max. score 2)	1.3 \pm 0.3	1.9 \pm 0.2	< 0.0001
Mosquito borne diseases (Max. score 2)	0.9 \pm 0.4	1.7 \pm 0.3	< 0.0001
Life span and flying habit (Max. score 2)	0.4 \pm 0.5	1.7 \pm 0.5	< 0.0001
Biting pattern (Max. score 3)	1.6 \pm 0.8	2.1 \pm 0.7	< 0.0001
Breeding places (Max. score 7)	3.8 \pm 1.0	5.7 \pm 0.7	< 0.0001
Resting habit (Max. score 2)	1.2 \pm 0.5	1.9 \pm 0.2	< 0.0001
Mosquito net (Max. score 1)	0.97 \pm 0.2	1.0 \pm 0.0	Not Applicable
Control measures (Max. score 3.5)	1.9 \pm 0.7	3.3 \pm 0.3	<0.0001
Total score (max. score 22.5)	12.0 \pm 2.2	19.2 \pm 1.3	<0.0001

*Wilcoxon sign rank test

Table 2: Knowledge about dose of chemical for different container, correct method for checking larvae and correct advice given to people for mosquito control

Questions	Pre intervention	Post intervention	P value*
	Mean score \pm SD	Mean score \pm SD	
Dose of chemical and duration of action	0.8 \pm 0.7	2.8 \pm 0.4	< 0.0001
Correct method of checking larvae	0.4 \pm 0.5	0.7 \pm 0.4	< 0.0001
Correct advice given to people for mosquito control	0.6 \pm 0.5	0.9 \pm 0.3	< 0.0001
Total score (Max. score 7.5)	1.8 \pm 0.9	4.5 \pm 0.6	< 0.0001

*Wilcoxon sign rank test

Table 3: Pre and Post-Intervention Training Assessment of Knowledge

Knowledge of link workers	Pre-intervention (%)	Post-intervention (%)
Poor (Total mean score \leq 15)	102 (37.2)	0
Fair (Total mean score= 16 to 26)	172 (62.8)	106 (38.7)
Good (Total mean score $>$ 26)	0	168 (61.3)
Total	274	274

As in table 2, questions assess psychomotor skill domain of link worker, 14 days after training post training mean score was improved to 4.5 (60%) from pre training mean score 1.8 (24%) out of total score 7.5. All link workers answered a name "Abate" for question asked which chemical you used for mosquito control but 79.2% link workers answered chemical method as anti-larval method for mosquito control. Very few link workers (13.1%) know about correct use of abate solution. After interventional training, their knowledge about correct dose of abate solution was significantly increased (72.3%). Initially they used abate solution in washing clothes and mopping the floor it was not useful

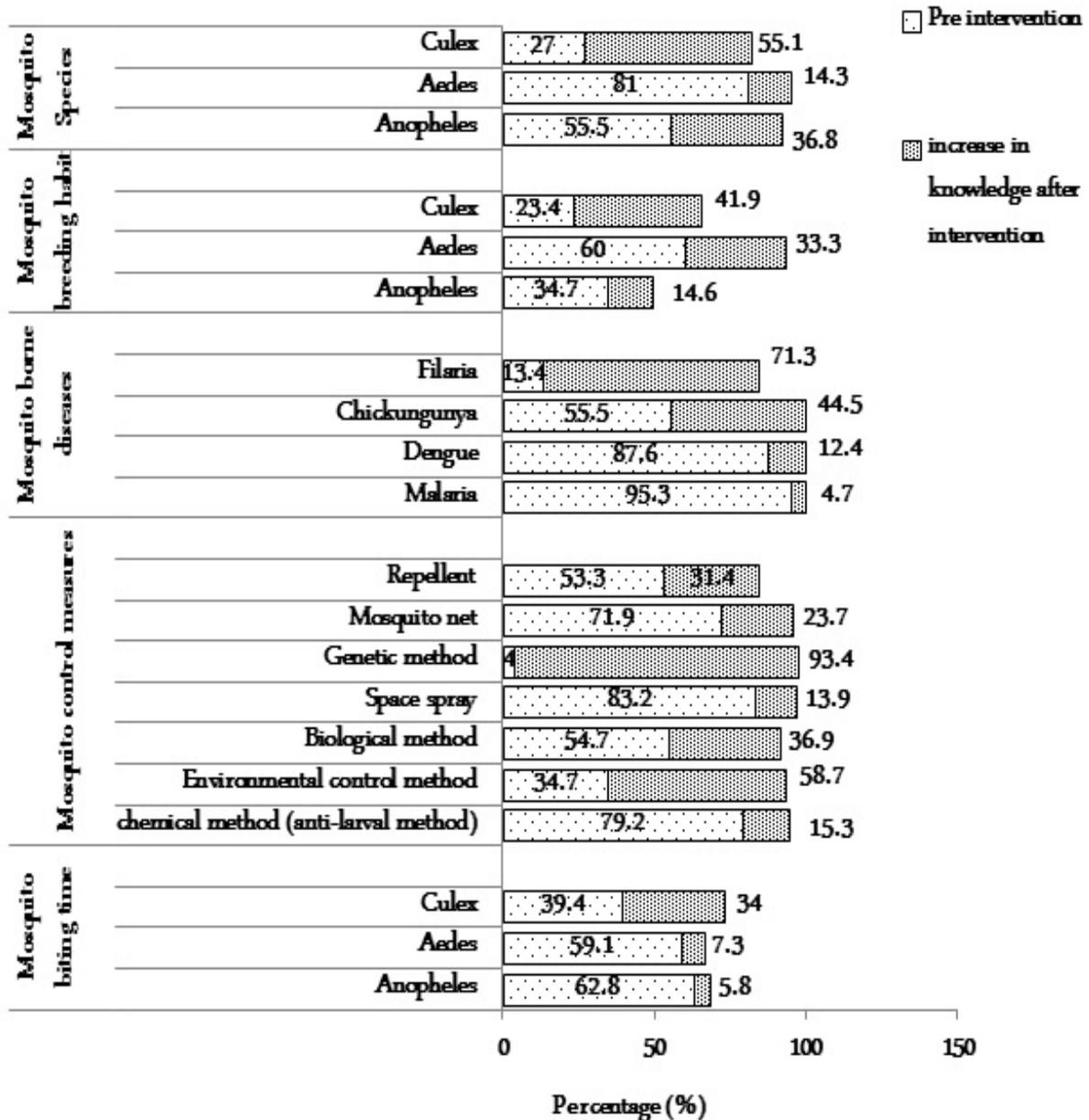
at all and wastage of chemical larvicide. All link workers had knowledge abate should not be added in water tanks containing fish because fish itself act as biological larvicide. There was significant increase in mean score of knowledge correct dose of temephos (abate) application in different containers from 0.8 to 2.0 (p value < 0.001).

Although improvement in the knowledge of link workers was seen after intervention, there is no linear relationship of increase in knowledge with their education status. Total mean score of overall knowledge was increased from 15.7 to 25.6 after intervention training (p value <

0.0001). As in table 3, before intervention no any link worker had good knowledge, while 37% had poor and 63% had fair knowledge regarding

mosquito borne diseases and control measures which was improved after training good knowledge (61%) and fair knowledge (39%).

Figure 1: Knowledge About Types of Mosquito, Mosquito Breeding Places, Mosquito Borne Diseases, Biting Time of Various Species of Mosquitoes



DISCUSSION AND CONCLUSION

Link workers play a pivotal role in anti-larval measures taken for the prevention of mosquito borne diseases. Consequently the education of link worker and also community is important for successful prevention of transmission of mosquito borne disease. Without being armed

with correct and precise knowledge about the disease transmission which spread through mosquito, we cannot control the mosquito borne disease in community. The unsatisfactory score observed in pre-test questionnaire could be a reflection of wider ignorance regarding the mosquito and their control measures in link

workers, this situation even not desirable in general population.

More than 80 % of link workers have satisfactory knowledge regarding malaria & dengue (mosquito borne diseases) but the knowledge regarding Chickungunya, Filaria (mosquito borne diseases) was not satisfactory but it significantly improved after intervention. The knowledge regarding mosquito & mosquito control measures was significantly improved after intervention (p value <0.05). So after educational intervention in terms of training, a substantial improvements concerning knowledge was seen in the intervention group

Hence there is a further need to educate and motivate the link workers. They are the worker directly come in contact with the people of community and they can educate the community and change the attitude and behavior of people. How much retention of the imparted knowledge remains over an extended period of time also remains to be seen.

RECOMMENDATION

There was an improvement in the knowledge regarding mosquito borne diseases and control measures of the link workers after our single education session of each group of link workers. Pre intervention knowledge regarding mosquito and control measures was unsatisfactory; this can be a picture of other link workers of other UHCs also which indicate urgent need of proper

training. Education interventions are to be done on a regular basis to improve the knowledge.

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