

Impact of educational intervention regarding mosquito-borne diseases and their control measures among multipurpose health workers (MPHWs) of Patan district, Gujarat, India

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Abstract

Background: In rural areas, multipurpose health workers (MPHWs) play a key role in implementing control measures and behavior change communication at community level to prevent and control mosquito-borne diseases.

Objective: To assess the knowledge of MPHWs regarding mosquito-borne diseases and control measures before and after single educational interventional training.

Materials and Methods: This interventional study was conducted among purposively selected 100 MPHWs of Patan district, Gujarat, India, from June to August 2014. After taking verbal consent, baseline knowledge of link workers regarding mosquito-borne diseases and mosquito control measures was assessed by predesigned, pretested, and semi-structured questionnaire. Single educational training for 45 min was given to the MPHWs and their postintervention knowledge for the same was assessed after the training. Assessment was done by Wilcoxon signed-rank test.

Result: Baseline knowledge of the MPHWs regarding mosquito-borne disease was 83%, which significantly increased after the training to 100%. Baseline knowledge of the health workers regarding breeding places of the mosquitoes was 89%, which significantly increased to 96% after the intervention. Baseline knowledge of the health workers regarding the indoor and outdoor measures for vector control was 4% and 39%, respectively, which significantly increased to 73% and 89%, respectively, after the intervention. Baseline knowledge of the health workers regarding the signs and symptoms of malaria, dengue, and chikungunya were 79%, 26%, and 22%, respectively, which significantly increased to 84%, 76%, and 90%, respectively, after the intervention.

Conclusion: There was a significant improvement in the knowledge regarding mosquito-borne diseases and control measures of the MPHWs after our single education session. Such education interventions need to be done on a regular basis to improve their knowledge for a better control of mosquito-borne diseases.

KEY WORDS: Multipurpose health workers, mosquito-borne diseases, control measures, malaria, dengue

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Introduction

Rural areas face the increasing problem of mosquito-borne diseases owing to unplanned development, population expansion and rapid urbanization. Various mosquito-borne diseases are prevalent in India such as malaria (protozoal), dengue (viral), chikungunya (viral), filariasis (helminthic), yellow fever (viral), and Japanese encephalitis (viral). India reports more than 1 million cases of such kind of diseases every year.^[1]

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National Vector Borne Disease Control Program (NVBDCP), being the all-inclusive and complex public health activity, includes the prevention and control of mosquito-borne diseases.^[2] Environmental control offers the best approach to the control of mosquitoes. Source reduction, that is, taking care in restricting the larval breeding sources, is potentially the ideal method for controlling mosquitoes.^[3]

Patan district, located in north Gujarat contains 15 community health centers (CHCs) and 35 primary health centers (PHCs) with about 350 health workers.^[4] The MPHWs are the persons who come in direct contact with the community acting as a link between the health sector and the community. The MPHWs play a key role by encouraging the client behavior change through door-to-door visit of their area where they are doing temephos application as antivevector measures, and thus, spreading the awareness of the control measures for vector-borne diseases in community.

The multipurpose health workers (MPHWs) are full-time workers and play key role in developing a suitable and an effective health education strategy; it is inevitable to understand the level of knowledge of these workers, their attitude, and practices regarding mosquito-borne diseases.^[4] Thus, this study was a humble effort to assess the knowledge of MPHWs of Patan district, Gujarat, about mosquito-borne diseases and control measures before and after training.

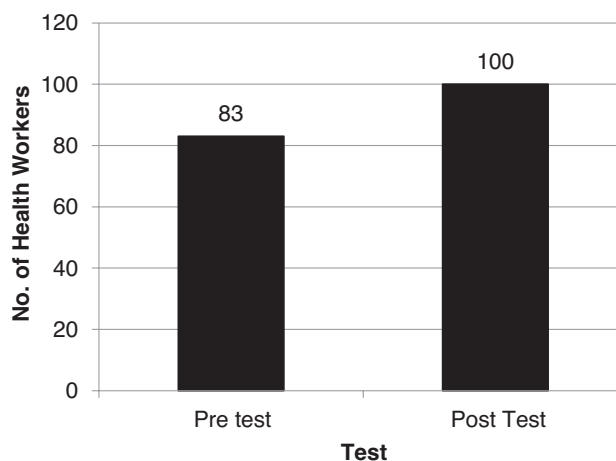
Materials and Methods

This interventional study was conducted among purposively selected 100 MPHWs of Patan district, Gujarat, India, from June to August 2014. After taking verbal consent, baseline knowledge of link workers regarding mosquito-borne diseases and mosquito control measures was assessed by a predesigned, pretested, and semi-structured questionnaire. Questionnaire was converted in vernacular language for assessment. Single educational interventional training for 45 min was given to selected MPHWs with lecture, charts, demonstration, and discussion. Postintervention knowledge of MPHWs for the same was assessed after training by the same questionnaire. Pre- and posttraining assessment was done by scoring method; mean, standard deviation, and Wilcoxon signed-rank test were applied.

Result

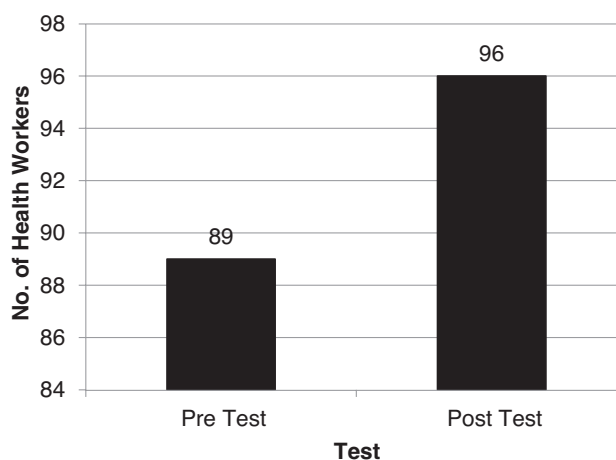
The mean age of the health workers was 35.8 ± 10.17 years. The mean job duration was 8.58 ± 9.13 . About 48% of the health workers had completed their graduation. Baseline knowledge of the health workers regarding mosquito-borne disease was 83%, which significantly increased after the training to 100% [Figure 1]. Baseline knowledge of the health workers regarding breeding places of the mosquitoes was 89%, which significantly increased to 96% after the intervention [Figure 2]. Baseline knowledge of the health

workers regarding the indoor and outdoor measures for vector control was 4% and 39%, respectively, which significantly increased to 73% and 89%, respectively, after the intervention [Figures 3 and 4]. Baseline knowledge of the health workers regarding the signs and symptoms of malaria, dengue, and chickungunya was 79%, 26%, and 22%, respectively, which significantly increased to 84%, 76%, and 90%, respectively, after the intervention [Figures 5–7].



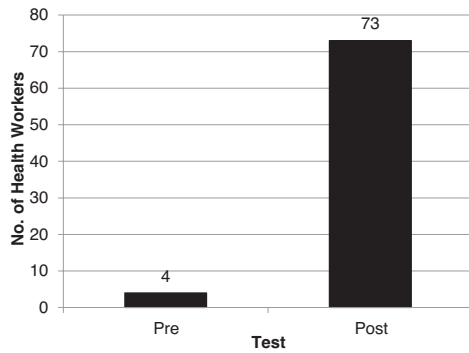
$$Z = -3.758; p < 0.001$$

Figure 1: Knowledge of multipurpose health workers regarding mosquito-borne diseases before and after training.



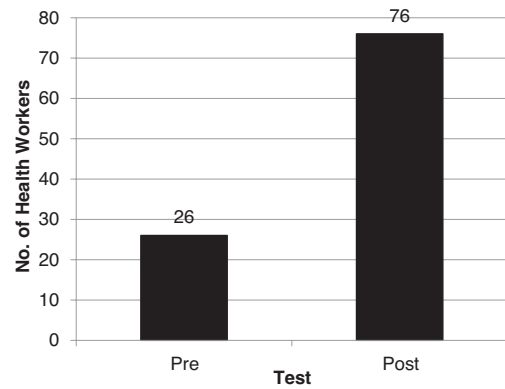
$$Z = -8.60; p < 0.001$$

Figure 2: Knowledge of multipurpose health workers regarding breeding places of mosquitoes before and after training.



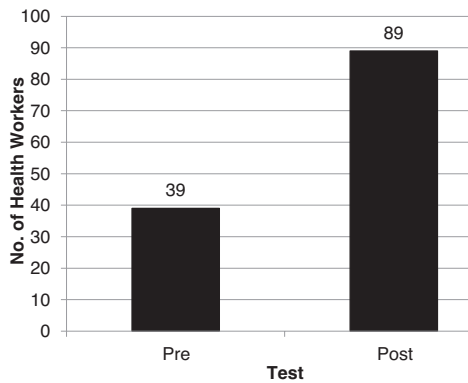
$Z = - 8.06; p < 0.001$

Figure 3: Knowledge of multipurpose health workers regarding indoor vector control measures before and after training.



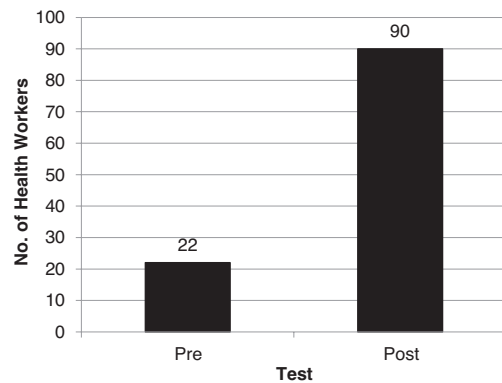
$Z = - 6.35; p < 0.001$

Figure 6: Knowledge of multipurpose health workers regarding signs and symptoms of dengue before and after training.



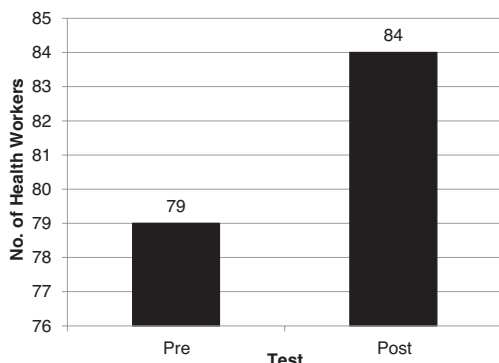
$Z = - 6.594; p < 0.001$

Figure 4: Knowledge of multipurpose health workers regarding outdoor vector control measures before and after training.



$Z = - 8.24; p < 0.001$

Figure 7: Knowledge of multipurpose health workers regarding signs and symptoms of chikungunya before and after training.



$Z = - 1.80; p < 0.071$

Figure 5: Knowledge of multipurpose health workers regarding signs and symptoms of malaria before and after training.

Discussion

Health workers play a pivotal role in control measures taken for the prevention of mosquito-borne diseases. Consequently, the education of health workers and the community is important for the 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.^[5]

In the study done by Arpit et al.,^[6] the mean age of the health workers was 31.3 ± 4.8 years. About 73% of the link workers had completed their higher secondary education or above. In our study, the mean age of the health workers was 35.8 ± 10.17 years. The mean job duration was 8.58 ± 9.13 . About 48% of the health workers had completed their

graduation. The knowledge regarding chikungunya, dengue, and malaria as mosquito-borne diseases was 55.5%, 87.9%, and 95.5%, respectively, which increased after intervention to 100%. But, 14.4% of them did not know that filariasis is also a mosquito-borne disease even after training. About 23.4% link workers possessed knowledge about the breeding places of *Anopheles* and *Culex*, which increased to 49.3% and 65.3%, respectively. Knowledge regarding antilarval method such as chemical method was 79.2%, which increased after intervention to 94.5%, and the knowledge about other methods such as environmental control (34.7%), biological method (54.7%), space spray (83.2%), mosquito net (71.9%), and repellent for personal protection (53.3%) improved after training to 93.4%, 91.6%, 97.1%, 95.6%, and 84.7%, respectively.

In our study, knowledge regarding mosquito-borne diseases was 83%, which reached 100% after intervention. About 16% did not know about filariasis, and 89% health workers possessed knowledge about the breeding places of mosquito, which increased to 96% after the intervention. The knowledge regarding the indoor and outdoor control measures was 4% and 39%, respectively, which increased to 73% and 89%, respectively, after the intervention. The unsatisfactory score observed in pretest questionnaire could be a reflection of wider ignorance regarding the mosquito and their control measures in health workers; this situation was not desirable even in general population. Most of the health workers possessed satisfactory knowledge regarding malaria and dengue (mosquito-borne diseases), but the knowledge regarding chikungunya and filaria (mosquito-borne diseases) was not satisfactory; but, it significantly improved after intervention. The knowledge regarding mosquito and mosquito control measures significantly improved after the intervention.

In the study done by Rakhshani and Mohammadi, the knowledge and behavior about proper content increased considerably after 3 months in both the groups. The knowledge increased in the intervention group significantly when compared with the control group. The results showed these simple and inexpensive interventions effect to improve proper content in malaria education. The findings highlight the importance of considering the proper content in malaria education when planning Community Health Worker (CHWs) education programs.^[7]

Conclusion

There was an improvement in the knowledge regarding mosquito-borne diseases and control measures of the MPHWs after our single education session. Such education interventions need to be done on a regular basis to improve their knowledge for better control of mosquito-borne diseases.

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