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Original Research Article

A cross sectional study to assess the effectiveness of orientation and induction programme among public health officers of a municipal corporation in North India: pre-test and post-test analysis

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ABSTRACT

Background: Vector borne diseases like malaria & dengue are of public concern. Public Health Officers have the job to identify and investigate health issues among people. But there is a need forinduction training and re-training for ensuring adequate awareness and safe practices in healthcare settings. The present study was conducted to study the effect of orientation trainings on the knowledge of public health officers about the common vector borne diseases like malaria and dengue.
Methods: This was a cross-sectional study conducted among 22 public health officers of Municipal Corporation of North India. Pre-test and post-test questionnaire was asked related to topics such as vector borne diseases, their prevention, treatment and water related diseases. Posttest was asked after two days of induction and orientation training. The pre- and post-test scores were tabulated and statistically analyzed using statistical package for the social sciences (SPSS) version 21. Data was presented in descriptive form and statistical significance of difference (taken as p-value <0.05) was calculated using paired t test.
Results: The present study reported that the orientation programme conducted was highly informative to the medical officers. Study showed that post-test response was higher ascompared with pre-test response and this difference was found statistically significant ($p<0.002$).
Conclusions: Informative trainings are helpful to increase knowledge and giving information about the recent changes in the health programme to public medical officer who are particularly working in the community setting.

Keywords: NVBDCP, Pre-test, Post-test, Public health officers

INTRODUCTION

National vector borne disease control program (NVBDCP) is an umbrella program for prevention and control of 6 vector borne diseases namely malaria, filaria, Japanese encephalitis (JE), dengue/DHF, chikungunya, lymphatic filariasis and kala azar. NVBDCP strategies comprise - early diagnosis, prompt and complete treatment; integrated vector management including promotion of personal protective measures and biological measures; and behavioural change communication (BCC), capacity building through integrated training at all tiers of health care delivery system.[1] Vector borne disease is an important public health problem in India. They account for more than 17% of all infectious diseases causing about 7 lakhs deaths annually.[2]

For attaining requisite competency for meeting NVBDCP objectives, public health officers need to be trained at their respective district levels. Effective orientation programs

increase the self-confidence by providing them knowledge and help them to perform their job effectively.[3] Public health officers have to identify and investigate health issues and health hazards in the people. They provide communities required personal health services and ensure the provision of healthcare. They can develop plans and policies that help individual and community health initiatives and search for new ideas and innovative solutions to health issues. So skilled updated knowledge is needed so that staff can handle situations in various health care settings. Various studies have emphasized the need for induction training and re-training for ensuring adequate awareness and safe practices in health care settings.[4-8] The present study was conducted to study the effect of orientation trainings on the knowledge of public health officers about the common vector borne diseases like malaria and dengue.

METHODS

Study type

It was a cross sectional study.

Study period and study place

Two days induction training was organized by public health department of a municipal corporation of North India and community medicine department of tertiary care hospital on 29 January 2019 and 30 January 2019.

Study population

22 public health officers of Municipal Corporation of North India.

Study tool

After getting institutional ethical approval participants were enrolled in the study. Informed consent was taken after telling them about the objective of the study. Public health officers which include medical officers, epidemiologists and entomologists who were working under Municipal Corporation and given consent for the study and training were included in the study. Participants were asked a structured questionnaire (pre-test) that comprised of 20 questions. The self-administered questionnaire which was prepared by the investigator and it was validated by the experts in the same field were used for data collection. Pre-test and post-test questionnaire included topics such as vector borne diseases, their prevention, treatment and water related diseases. These participants were then subjected to the same questionnaire after the refresher training (post-test). Score of equal or more than 14 was considered as adequate knowledge, 8-13 moderate knowledge and 0-7 inadequate knowledge. Presentation, group exercise, hands on training, demonstration and presentation by resource persons were main tools to impart training to all participants, which was considered as intervention in the present study.

Data analysis

Data was entered into Microsoft excel sheet. The pre- and post-test scores were tabulated and analyzed using statistical package for the social sciences (SPSS) version 21. Data was presented in descriptive form and statistical significance of difference (taken as p value <0.05) was calculated using paired t test.

RESULTS

A total of 22 public health officers participated in the pre-test, refresher training, and post-test. The joint exposure of all the participants to the same set of facilitators (subject experts) for refresher training and to identical pre-and post-test questionnaires would invalidate the likely consequences of confounding variables.

Table 1 showed pre and post training score of correct answer regarding the epidemiology, treatment and prevention of malaria with average increase of 14.57% knowledge.

Table 2 showed knowledge (% of score of correct response) training. An average 18.06% increase in knowledge regarding dengue fever was seen among study participants the training session.

Table 1: Pre training and post training score of correct answer regarding malaria in public health officers.

S. no.	Question (correct answer)	Pre-test result n (%)	Post-test result n (%)	% increase in knowledge
1	How many diseases are included in NVBDCP?	59.1	86.4	27.3
2	Endemic areas are classified based on which criteria according to modified plan of operation?	90.9	100	9.1
3	Which drug should be used to treat *Plasmodium vivax* malaria in pregnancy?	18.2	50	31.8
4	Which plasmodium species is known for relapses in malaria?	22.7	27	4.3
5	Which month is antimalarial month throughout the country every year?	95.5	100	4.5
6	What is full form of API?	59.1	68.2	9.1

Continued.

S. no.	Question (correct answer)	Pre-test result n (%)	Post-test result n (%)	% increase in knowledge
7	What is the incubation period of *Plasmodium vivax*?	40.9	72.7	31.8
8	Release of successive broods of what into the blood stream coincide with the peak of fever in malaria?	50	59.1	9.1
9	Which medicine is used for prophylaxis malaria?	72.7	77.7	5
10	What is a feature of vector of malaria?	72.7	86.4	13.7

Table 2: Table showing the pre training and post training score of correct answer of public health officers' knowledge regarding dengue fever.

S. no.	Question	Pre-test (correct answer) result in (%)	Post-test (correct answer) result in (%)	% increase in knowledge
1	How many diseases are included in NVBDCP?	59.1	86.4	27.3
2	How classical dengue fever is transmitted?	100	100	0
3	Which of the following statement is false related to dengue hemorrhagic fever?	18.2	81.8	17.6
4	What type of vaccine is dengvaxia?	45.5	77.3	31.8
5	What is the main feature of dengue shock syndrome?	68.2	81.8	13.6

During pre-test among 22 participants, 7 (31.8%) were having adequate knowledge, 12 (54.5%) were having moderate knowledge and 3 (13.7%) were having inadequate knowledge about malaria and dengue. During posttest 17 (77.2%) reported to have significantly high knowledge, 5 (22.8%) were having moderate knowledge and no one was having inadequate knowledge as shown in Figure 2.

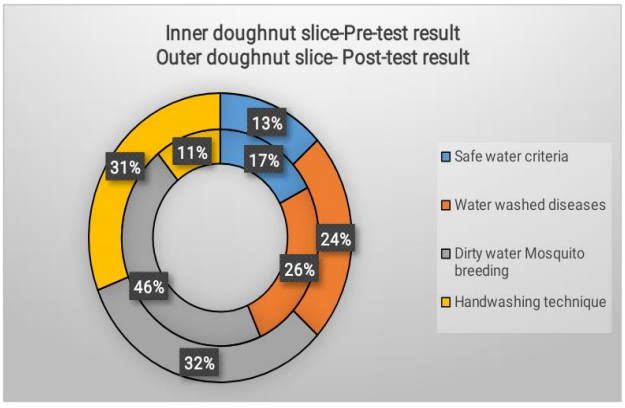

Figure 1: Results of pre and posttest questioner regarding safe water and diseases related to dirty water. Size of doughnut slice showed that there was comparative improvement in the handwashing technique knowledge after training.

Table 3 showed paired t test was used to identify the difference between two groups. According to Table 3 the difference is considered to be extremely statistically significant. So the orientation programme conducted for the public health officers found to be very effective as it helps to improve their knowledge regarding diseases of public health importance.

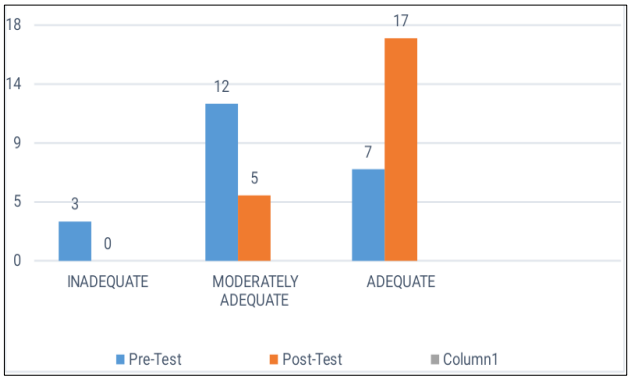

Figure 2: The comparison of knowledge about malaria and dengue before and after the orientation programme.

Table 3: Comparison of pre and post test score knowledge of public health workers.

Test	Mean	SD±SEM	t value	P
Pre-test	11.50	3.28±0.69	3.501	0.002
Post-test	14.45	2.198±0.47		

DISCUSSION

The present study stated that the orientation programme conducted was highly informative to the medical officers. Study showed that post-test response was found higher as compared with pre-test response and on applying Z test this difference was found statistically significant (t test: 3.501; p<0.002). The mean improvement of knowledge for malaria and dengue among study participants was 14.5% and 18.06% respectively. The mean score of knowledge overall was 11.50±3.28 in the pre-test while the mean score of post-test was 14.45±2.198.

Such informative training has significant positive effect on the medical officer and it increases their level of knowledge and counseling skill. Another study done by Mansuri et al on medical officers showed significant difference in knowledge in pretest and post-test (Z test: 4.79*; p<0.0001).[9] A similar kind of study on importance of induction training done by Vaibhav and Harshad also supports our results that significant difference was found in all participants in the post test.[10,11]

Malaria remains a major public health challenge in India, contributing two-thirds of the parasitological confirmed malaria cases in the Southeast Asia region.[12] National framework for malaria elimination in India (2016-2030) aims to eliminate by 2030 and maintain malaria-free status in areas where malaria transmission has been interrupted and prevent re-introduction of malaria.[13] Dengue in India has dramatically expanded over the last few decades, with rapidly changing epidemiology.[14-16]

Early diagnosis and prompt treatment is a cornerstone of malaria and dengue control. India's malaria control strategies under the aegis of the NVBDCP introduced innovations to strengthen its fight against malaria and dengue. Appropriately and efficiently trained health personnel including medical officers is the keystone to successful implementation of the policy.[17] Good hand hygiene can contribute to the better patient care outcome and also protect health care workers in all health care settings contributing to the best possible patient and public health outcomes. So it is imperative for health workers to have correct knowledge of hand washing techniques.[18]

To promote, maintain or restore human health through continuing and comprehensive preventive and medical care to individuals, families, and communities is one of the most important duties of medical officers (MO) in India. If they are well aware and updated about disease pattern, only then they can transmit this fruitful information up to most peripheral levels of the village. Such similar type of induction training will refresh and update their knowledge and inform them regarding the recent changes in the programme.

Other important findings are that all the participants appreciate this type of educational training. This type of learning sessions definitely helps them in addressing their weakness, improve their performance as counsellor, increase their productivity and also improve quality of services.

Limitations

In the current study the post-training test was conducted within very short time gap. A future study with a minimum time gap of 2 to 3 months may be better to assess actual knowledge gain. Also the study included only public health officers of only one municipal corporation of North India so the results can't be generalized for other areas.

CONCLUSION

Training increases the knowledge of study participants regarding Vector borne diseases and water borne diseases. Sustained efforts would be required to bring about the desired attitudes and practices. Study results showed that training and retraining are always required in the medical officer who is actually working in community set up. It will refresh their knowledge and inform them regarding the recent changes in the programme. Newer innovations techniques like the widespread use of mobile phones, and periodic online sessions. It is possible to conduct periodic refresher training easily.

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