

Development of the Operational Module for Capacity Building with Reference to the Essential Public Health Services of the Health Care Providers in Maharashtra

Nilima Sonawane

Abstract

The nurses and midwives are the backbone for the delivery of health care service. Their contribution to health care development is crucial to achieve the Millennium Development Goals. Education and training are key investment tools for Capacity Building. This descriptive study aimed to identify the training needs of the health workers with regards to the Essential Public Health Services (EPHS) and develop the operational modules for the capacity building. The study was conducted at the selected Primary Health Centres and Sub-Centres in Maharashtra; 200 Health Care Providers were selected by non-probability convenience sampling technique. In phase 1, the Training Need Assessment was done and in 2nd phase, on the basis of training needs, the operational module on EPHS was developed and evaluated for the Capacity Building components. The results showed a significant difference between the pre-test and post-test mean knowledge, attitude and practice scores, as the calculated t values (Knowledge = 24.14, Practices = 13.89, Attitude = 11.83) were greater than the table t value 1.96 at 0.05 significance level, corresponding to $df = 199$. The calculated ' r ' values for Knowledge with Practices, Practice with Attitude and Attitude with Knowledge ($p < 0.05$), indicated a positive correlation in pre-test. In post-test, the Practices were not correlated with the Knowledge and Attitude ($p \geq 0.05$), whereas, Knowledge was correlated with the Attitude ($p < 0.05$). Association of mean knowledge, attitude and practice scores with the selected demographic variables showed no significant association between the age, education, designation, nature of an appointment, area of work, work experience, building of PHCs/ SCs, travelling times ($p \geq 0.05$). Whereas, there was a significant association between the training received and the post-test mean knowledge score ($p < 0.05$) at 0.05 levels. Further, there was association between the age, education, work experience, and area of work with the post-test attitude score ($p < 0.05$). To conclude, Operational Module based on the training needs, designing teaching-learning methods which focused on both theory and practices is an essential tool for Capacity Building in the Primary Health Care system.

The burden of non-communicable diseases, emerging and re-emerging infectious diseases, natural and manmade disasters, including threat of bio-terrorism have increased dramatically in almost all the countries. Public health systems and services today find it hard to meet the broad range of public health demands. Unfortunately, the common broad descriptions and definitions of public health do not help the systematic identification of the key health services, 'The Essential Public Health Functions' (EPHFs) may assist in this regard. These EPHF will act as working definition and guidelines, to focus on the key areas of Public Health services.

The Pan American Health Organisation/World Health Organisation (PAHO/WHO; 2003) defines

the EPHF as the "indispensable set of actions, under the primary responsibility of the state, that are fundamental for achieving the goal of public health which is to improve, promote, protect, and restore the health of the population through collective action".

Following essential public health services (EPHS) are described by the PAHO/WHO:

1. Monitor - Health status to identify community health problems.
2. Diagnose and investigate - Health problems and health hazards in the community.
3. Inform Educate, and Empower - People about health issues.
4. Mobilise - Community partnerships to identify and solve health problems.
5. Develop policies and plans - To support individ-

The Author is Prof and Head, Department of Community Health Nursing, Institute of Nursing Education, Sir JJ Hospital, Mumbai (MS).

ual and community health efforts.

6. Enforce - Laws and Regulations that protect health and ensure safety.
7. Link - People to needed personal health services and assure the provision of health care when otherwise unavailable.
8. Assure - A competent public health and personal healthcare workforce.
9. Evaluate - Effectiveness, accessibility and quality of personal and population-based health services.
10. Research - New insights and innovative solutions to health problems.

Multipurpose Health Worker (Female)/ANMs are regarded as the first contact person between people and the health centres, between the needs and services and between the consumers and providers. Considering their status as a grass-root level workers in the health organisational hierarchy, a heavy responsibility rests on them (GOI, 1986). Since the Nurses and Midwives are the backbone for the delivery of health services, their contributions to health care development are crucial to achieve the Sustainable Development Goals. Education and training are key investment tools for Capacity Building.

Modular teaching is one of the most widespread and recognised teaching learning techniques. Providing tailor made Operational Module based on the Training Needs Assessment with reference to the EPHS, will serve as framework for guiding ANMs in planning, implementation and evaluation of the Essential Public Health Functions. Thus, the key question addressed in this study was, 'Is the implementation of designed 'Operational Module' an effective way of Capacity Building of the Health Care Providers?'

Objectives

1. To assess the training needs of the Health Care Providers with reference to EPHS.
2. To develop and validate the Operational Module with reference to the EPHS.
3. To assess the Knowledge, Attitude and Practices of the Health Care Providers with reference to the EPHS, before and after implementation of the Operational Module.
4. To compare the Knowledge, Attitude and Practices of the Health Care Providers before and after implementation of the Operational Module.
5. To ascertain the association of Knowledge, Attitude and Practices with the selected demographic variables such as, age, edu-

cation, designation, nature of an appointment, work experience and area of working.

Hypotheses

The 'Operational Module' is an effective method of Capacity Building in enhancing the Knowledge, Attitude, Practices, Planning, Decision Making and Problem Solving of the Health Care Providers, in providing the Essential Public Health Services.

The central hypothesis was further subdivided into the null hypotheses and corresponding alternate hypotheses for statistical testing for the purpose of their rejection or acceptance.

H₀₁ - There is no significant difference between the mean knowledge score of the Health Care Providers with reference to the EPHS in pre-intervention and post-intervention.

H₀₂ - There is no significant difference between the mean Attitude score of the Health Care Providers with reference to the EPHS in pre-intervention and post-intervention.

H₀₃ - There is no significant difference between the mean Self Assessed Practice score of the Health Care Providers with reference to EPHS in pre-intervention and post-intervention.

H₀₄ - There is no significant difference between the Mean observed Practice score of the Health Care

Table 1: Designation, nature of an appointment & area of work of the HCPs (n=200)

Demographic variables	f	%
<i>Designation</i>		
Female Health Workers/ANMs	184	92
Lady Health Visitor/LHVs	16	8
<i>Nature of appointment (n=184)*</i>		
Regular	144	78
On contract basis under NRHM	40	22
<i>Area of working</i>		
General/Plain	153	76.5
Hilly	9	4.5
Tribal	38	19

*The ANMs (184) were posted on regular as well as on contract basis, whereas all the LHVs were appointed on regular basis, hence the LHVs are not reflected under Nature of appointment.

Table 2: Existing physical infrastructure (Buildings) of the PHCs & SC (n=200)

S No.	Physical infrastructure/ Building	Building of PHC		Building of Sub-Centres	
		n=63		n=137	
		f	%	f	%
1	Government owned	61	96	108	79
2	Rented	2	4	6	4
3	No building	Nil	0	23	17

Providers with reference to the Essential Public Health Services in pre-intervention and post-intervention.

H₀₅ - There is no significant difference between mean decisions making score of the Health Care Providers with reference to the EPHS in pre-intervention and post-intervention.

H₀₆ - There is no significant correlation between the Knowledge, Attitude and Practices of the Health Care Providers with reference to the EPHS in pre-intervention and post-intervention.

H₀₇ - There is no significant association between the post-intervention Mean score of Knowledge, Attitude and Practices with the selected demographic variables.

Review of Literature

Dileep Kumar (2005) stated that the capacity of public health nurses and ANMs should be strengthened. The ANM should be taught more about infectious diseases such as HIV/AIDS, TB, malaria and be responsible for midwifery work in the community.

McCracken Helen (2004) presented a paper on the relevance and usefulness of EPHS in the context of context of New Zealand. It suggested that EPHFs have developed in response to the pressures being placed on public health infrastructures around the world and as a means of defining the “new public health”. The paper indicated that the EPHFs, developed in many countries are better positioned to respond effectively and efficiently to broadening public health demands and challenges.

The study conducted by Lodhiya Kaushik et al (2012), Iyer Veena (2013), Kermode Michelle et al (2005), Nair V et al (2001) and Ariff Shabina et al (2010), indicated that the Health workers lack knowledge and competencies with reference to Public Health Services.

The study on assessing the effectiveness of modular training by Viji Prasad C, Samuel George (2014), Joseph KB, Matovu et al (2013), Dutta PK (2005), Clifford P, Goldschmidt K, O'Connor T (2007) and Kang Jeanne M (2002) indicated that modular, work-based training model strengthens the capacity of the health workforce through hands-on, real-life experiences in the work-setting and improves their capacity.

Materials and Methods

In this descriptive study of the Health workers working under the PHCs and Sub-Centres of Maharashtra, 200 Health Care Provides were selected using non-probability convenience sampling technique. The phase 1 was on the

Training Need Assessment. In phase 2, on the basis of training needs, the Operational Module on EPHS was developed and evaluated for the Capacity Building components i.e. Knowledge, Attitude, Practices, Decision Making, Planning & Organising, Problem Solving. The data was collected using semi-structured questionnaire, self-assessment rating scale, three-point Likert Scale and the Inventory Checklist.

The analysis and interpretation of data was done with the help of inferential and descriptive statistics. The level of significance set for testing the hypotheses was at 0.05 levels. The paired t-test was applied to determine the significant difference between the pre-test and post-test mean Knowledge, Attitude, Practices (self-assessed and observed) and Decision Making scores. Pearson's correlation was applied to determine the correlation between Knowledge, Attitude and Practices. ANOVA and Tukey post-hoc tests were applied to determine the association between Knowledge, Attitude and Practices with the selected demographic variables.

Results

The demographic profile of the health care providers, their accommodation status, travel time and capacity building before and after intervention are covered in Tables 1-7 and Figs 1-7.

Table 3: The travel time required to reach the area of work from their residence (N=200)

Travel time		f	%
Time required to reach towards PHC (n=63)			
1	≤ 10 minutes	41	65
2	10 minutes – 30 minutes	12	19
3	30 minutes - 1 hour	10	15
4	1 hour - 2 hours	00	00
Time required to reaching SC (n=137)			
1	≤ 10 minutes	67	48
2	10 minutes - 30 minutes	47	39
3	30 minutes - 1 hour	23	17
4	1 hour - 2 hours	02	1

Table 4: In-service training received by the HCPs

S. No.	Training received	f	%
1	Yes	89	44.5
2	No	111	55.5
Total		200	100
If yes ...			
1	Workshop/Seminars in other institution	49	55
2	In- services education at local level	40	45
Total		89	100

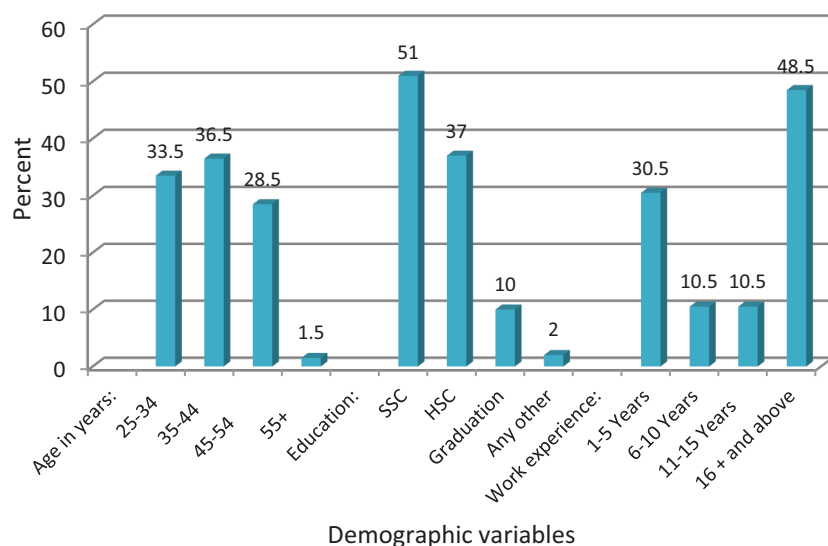


Fig 1: Age, education and work experience of the Health Care Providers MPHWF (n=200).

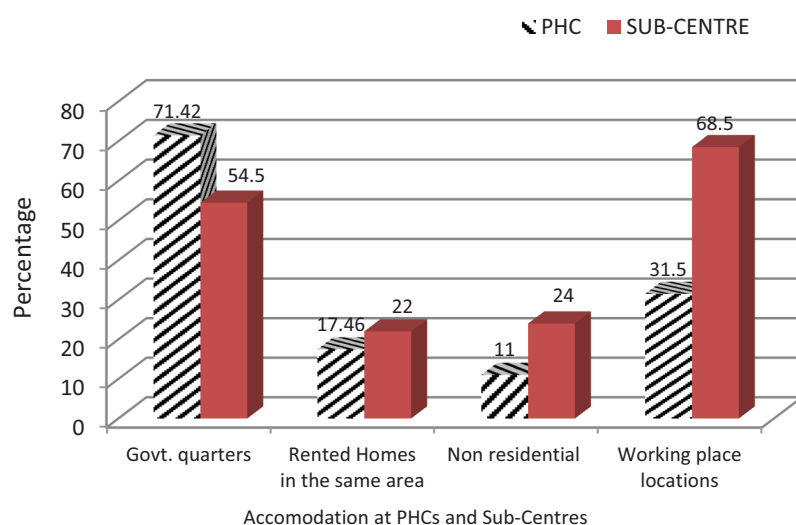


Fig 2: Area of work place & accommodation of the HCPs at PHCs and Sub-Centres.

Under Capacity Building components (Knowledge, Attitude, Practices, Decision Making, Planning & Problem solving) of the HCPs with reference to EPHS, it was found that in pre-test 15 percent had very good knowledge, which improved to 21.5 percent in post-test. Only few (5%) had excellent knowledge in pre-test, which significantly improved to 71 percent after implementation of the Operational Module (Fig 3).

The findings showed that the positive response (53.4%) in pre-test improved to 66.96

percent in post-test. Whereas, the negative responses (32.31%) in pre-test reduced to 22.45 percent in post-test. The neutral responses reduced from 14.58 percent in pre-test to 10.58 percent in post-test (Fig 4). The mean Attitude score in pre-test was 66.39 which increased to 73.45 in post-test.

Majority (61%) of the HCPs reported excellent practices in pre-test, which improved (to 71.5%) in post-test (Fig 5). The overall Self-Assessed Practice score of the Health Care Providers was 71 percent in pre-test (mean=170.92) which increased to 81 percent (mean=191.01) in post-test, after implementing Operational Module on EPHS.

It was observed that the Practice scores in all the six dimensions was poor (40%) in pre-intervention, which improved (to 73.5%) in post-intervention and maintained (at 74.43%) after the 1 month's interval (Fig 6). The mean score increased from 12.0 in pre-test to 22.5 in post-test and maintained at 22.33 after the 1 month's interval.

Table 5 indicates that there was a significant difference between the pre-test and post-test mean score of Knowledge, Practice & Attitude, as the calculated 't' values (Knowledge = 24.14, Practices = 13.89, Attitude = 11.83) were greater than the table 't' value (1.96) at 0.05 significance level, corresponding to df=199, implying that the null hypothesis was rejected or the research hypothesis was accepted (Table 5).

Along with the KAP other capacity building components, planning, decision making and problem solving also showed improvement in post-test after implementation of the Operational Module.

Correlation between Knowledge, Attitude and Practices

Table 5: Significant difference between the pre-intervention and post-intervention: Mean Knowledge, Attitude and Practice scores of the Health Care Providers (n=200)

Variables in pre-test & post-test		Mean	MD	Std Deviation	SEM	t-table value	Calculated t-value	df	p-value
Knowledge	Pre-test	23.22	10.200	5.974	0.42	1.96	24.14	199	0.001
	Post-test	33.42							
Practices	Pre-test	170.92	20.095	20.447	1.44	1.96	13.89	199	0.001
	Post-test	191.01							
Attitude	Pre-test	66.39	7.060	8.439	0.59	1.96	11.83	199	0.001
	Post-test	73.45							

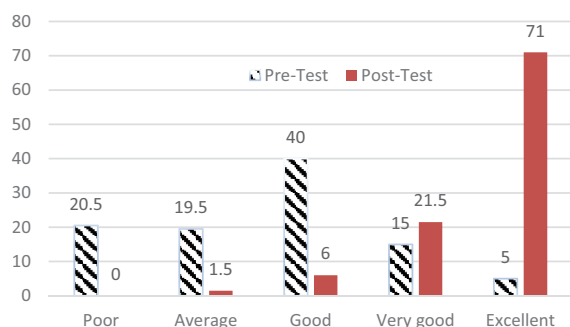


Fig 3: Grade-wise knowledge score of the Health Care Providers.

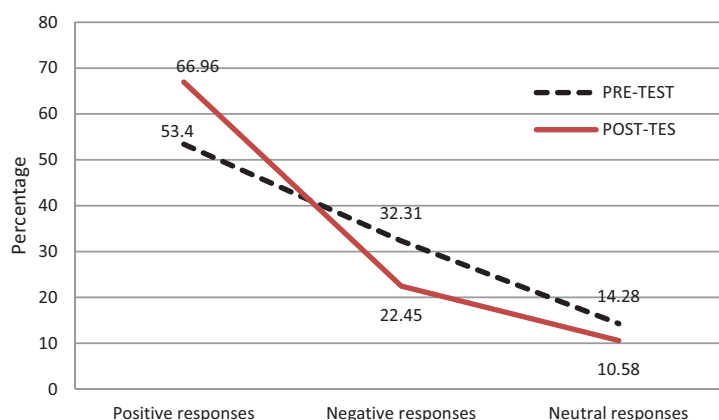


Fig 4: Attitude score of the Health Care Providers in pre-intervention and post-intervention.

The calculated 'r' values for Knowledge with practices (0.281), Practice with Attitude (0.287) and Attitude with Knowledge (0.274) were greater than the Pearson's table value (0.139) at 0.05 significance level, hence the H₀ was rejected and H₁ was accepted, indicating a positive correlation between Knowledge with Practice, Practice with Attitude and Knowledge with Attitude in pre-test.

The calculated 'r' values for Practice with knowledge (0.12) and Practices with Attitude (0.025) were less than the Pearson's table value of 0.139 at 0.05 significance level (Table 7). Hence H₀ was accepted and H₁ was rejected, indicating that the Practices were not correlated with the Knowledge and Attitude in post-test. Whereas, for attitude, the calculated 'r' value (0.144) was greater than the Pearson's table value (0.139) at 0.05 significance level. Hence H₁ was accepted and H₀ was rejected, this indicated that the Knowledge was positively correlated with the Attitude in post-test.

Association of Knowledge, Attitude and Practice scores with the selected demographic variables

There was no significant association between the age groups, education, work

experience, area of work with the post-test mean Knowledge and Practice score. Whereas, there was a significant difference between the training received and the post-test Mean Knowledge score, as determined by one way ANOVA at the $p < 0.05$ level [$F(1,198) = 3.968, p = 0.001$]. Thus training plays a pivotal role in capacity building. Moreover, the findings showed a significant association between the demographic variables with the post-test Attitude score, as determined by one way ANOVA at the $p < 0.05$ level.

Discussion

In the first phase training need assessment was done regarding the EPHS and key needs were identified for the development of Operational Module. Under the umbrella of National Rural Health Mission, the concept of providing specialised health services through Health Mela was highlighted. Thus, when the responses elicited in this respect (74%) reported that they need training in this area i.e. implementing the health programme through Community Partnership (73%) and Indian Public Health Standard (70%).

In phase 2, the operational module was developed and validated for its implementation. In phase 3, the module was implemented to evaluate its effectiveness in pre-intervention and post-intervention for the capacity building components i.e. Knowledge, Attitude, Practices, Planning, Decision making and Problem solving. The findings suggested that along with the KAP other capacity building components, planning, decision making and problem solving also

Table 6: Correlation between knowledge, attitude and practice scores in pre-intervention (n=200)

Correlation	Mean	Std Deviation	Table 'r' value	Calculated 'r' value	p value
Knowledge with practices	23.22	5.325	0.139	0.281	0.001
	170.92	42.424			
Practice with attitude	170.92	42.424	0.139	0.287	0.001
	66.35	5.855			
Attitude with knowledge	66.35	5.855	0.139	0.274	0.001
	23.22	5.325			

Table 7: Correlation of the knowledge, attitude and practice scores in post-intervention (n=200)

Correlation	Mean	Std Deviation	Table 'r' value	Calculated 'r' value	p value
Knowledge with practices	33.42	4.112	0.139	0.012	0.869
	191.01	34.579			
Practice with attitude	191.01	34.579	0.139	0.025	0.727
	73.45	6.873			
Knowledge with attitude	73.45	6.873	0.139	0.144	0.04
	33.42	4.112			

showed improvement in post-test after implementation of the Operational Module showing that the module was effective.

The correlation between knowledge, attitude and practices was assessed in pre-intervention and post-intervention. The findings indicated that the calculated 'r' values for knowledge with practices (0.281), Practice with Attitude (0.287) and Attitude with Knowledge (0.274) were greater than the Pearson's table value (0.139) at 0.05 significance level, hence the H₀ was rejected and H₁ was accepted, indicating a positive correlation of Knowledge with Practice, Practice with Attitude and Knowledge with Attitude in pre-test. Whereas, in post-intervention H₀ was accepted and H₁ was rejected, indicating that the Practices were not correlated with the Knowledge and Attitude. However, for Attitude, the calculated 'r' value (0.144) was greater than the Pearson's table value (0.139) at 0.05 significance level. Hence H₁ was accepted and H₀ was rejected, this indicated that the Knowledge was positively correlated with the Attitude.

The association of knowledge attitude and practices with demographic variables were assessed. There was no significant association between the age groups, education, work experience, area of work with the post-test mean Knowledge and Practice score. Whereas, there was a significant difference between the training received and the post-test Mean Knowledge score, as determined by one way ANOVA at the $p < 0.05$ level, $[F(1,198) = 3.968, p = 0.001]$. Thus training plays a pivotal role in capacity building. Moreover, there was a significant association between the demographic variables and the post-Attitude score, as determined by one way ANOVA as $p < 0.05$ level.

The study being unique in nature, provided a worthwhile experience. Majority of the PHCs had ideal buildings, good space management, cleanliness, display of important information and existing committees, seating arrangement; separate clinical areas and the residential quarters within the premises, projected an ideal PHC look. The Medical Officers of such PHCs were found to be enthusiastic and had good leadership style and had good interpersonal relationship with the Health Care Providers and with the community.

The researcher also observed that the PHCs under the IPHS were functioning effectively. The services provided were effective in terms of manpower, health resources and the health outcome, through-

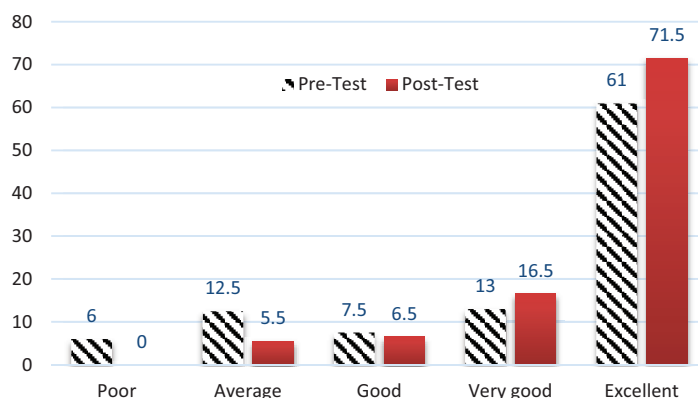


Fig 5: Self assessed practice score in pre-intervention and post-intervention.

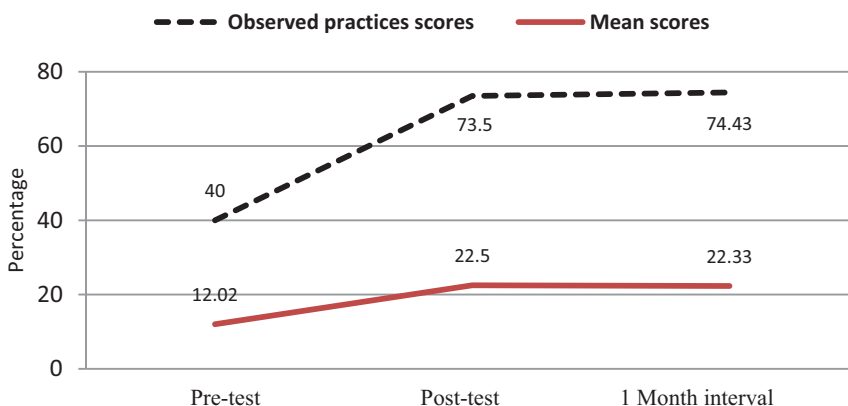


Fig 6: Observed practice and mean score of the HCPs at the given intervals.

out 24x7. The researcher's interactions with the people, with reference to the services provided by the PHC were quite overwhelming and the people in the area were satisfied with the health services provided by the PHCs under IPHS.

Conclusion

The Rapid Training Needs Assessment of the Health Care Providers with reference to EPHS is effective in terms of improving the knowledge and practices of HCPs. However for sustainable performance refresher modular training may be necessary. This Operational Module is replicable in the rural health care setting and can be mainstreamed in the day-to-day public health activities.

Implications

Nursing service: Capacity Building with reference to the improved Knowledge, Attitude, Practices, Problem Solving Abilities and Decision making of Health Care Providers contributes to the achievement of the desired goals and objectives of the public health.

Nursing education: Providing tailor-made Operational Module based on the training needs related to their job descriptions will serve as framework for the training and development of future competent multi-

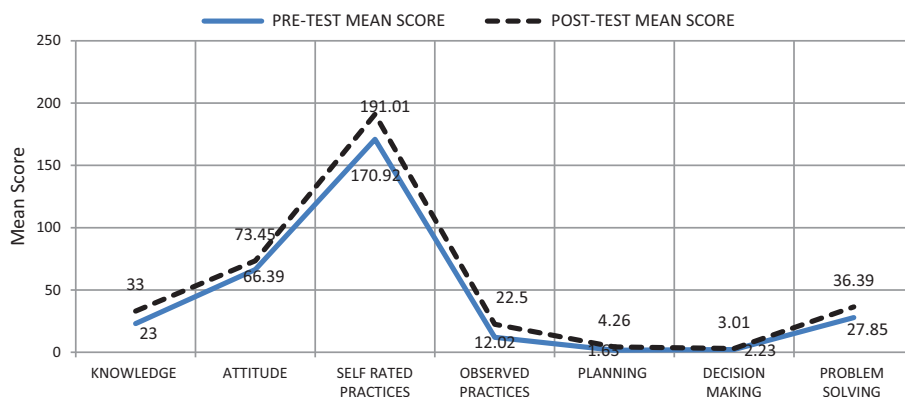


Fig 7: Mean scores of capacity building components in the pre-test and post-test.

purpose health workers, in planning and implementation of EPHS in their respective areas of working.

Nursing administration: The workforce training and competency is central to the success of any public health system. The finding of this study can be used as a reference for the public workforce development, and encourage the regional training centre to develop Operational Modules on other aspects of Public Health Services.

Nursing research: This study may sensitise the nursing personnel to explore the health care management issues and plan in-service education programmes based on the identified needs. This kind of evidence-based research provides practical remedies for the problems, pertaining to the service delivery and the Capacity Building of the health workers.

Recommendations

(1) A Longitudinal study can be conducted to evaluate the Capacity Building with reference to the Knowledge, Attitude and Practices of the Health Care Providers. (2) A large scale study can be undertaken for different categories of Health Care Providers in urban and rural areas. (3) A similar Operational Module can be developed on the other aspects of Public Health Services.

Recommendation to the Public Health Department

The concept of inclusion of the EPHS should be prioritised by the policy makers. Relevant GR with emphasis on inclusion of EPHSs in Primary Health Care through training should be produced and disseminated at the district level. The EPHS skills fill up the gap between the knowledge about Primary Health Care components and its application in terms of actual implementation in the community. This knowledge application gap is fulfilled by implementing specially structured training intervention for the Health Care Providers/HCPs at the grass root level.

Training need assessment of Health Care Providers may be undertaken at periodic intervals. The structured Operational Module can be used

as a tool, for the refresher training course in EPHS for the Health Care Providers.

A State level TOT should be organised to develop the core trainers and master trainers. The master trainers can conduct the training programme at the district level and DPHN can lead the training programme at the PHC level. A cadre of monitoring supervisors for monitoring the training process and subsequent training should be identified at the Taluka level. THO, TNO, MO of PHCs should be sensitised for ensuring skill

development of HCPs. Public Private and Community Partnership (PPCP) strategy should be promoted at the Sub-Centre level and the HCPs should be oriented in organising and implementing the PPCP effectively. The EPHS related indicators should be the parts of monthly reporting system.

References

1. Essential Public Health Functions: The Role of Ministries of Health. World Health Organization, Regional Office for the Western Pacific Bureau. Regional Committee. WPR/RC53/10. Fifty-third session 16 July 2002, Kyoto, Japan 16–20 September 2002
2. Situational Analysis of Public Health Nursing Personnel in India Based on National review and consultations in Six States. Conducted by the Academy for Nursing Studies, Hyderabad for Training Division, Ministry of Health and Family Welfare, GOI, with support from UNFPA, India, 2005. Available from <http://www.whoindia.org>
3. Dileep Kumar T. Financing and delivery of health care services in India. Background paper on the National Commission on Microeconomic and Health. Ministry of Health & Family Welfare Government of India, New Delhi, August 2005. Available from <http://www.whoindia.org>
4. World Health Organization, Regional Office for Europe. The Munich declaration: Nurses and Midwives: A Force for Health. 17 June 2000. WHO Ministerial Conference on Nursing and Midwifery in Europe. Report on a WHO Conference. Munich, 2000. pp 23-24. Available from: www.euro.who.int. Accessed on Jun 29, 2011
5. Indian Public Health Standards (IPHS) for Sub-Centres Guidelines (March 2006). Directorate General of Health Services, Ministry of Health & Family Welfare, GOI
6. Health Infrastructure. Directorate of Health Services, Maharashtra State. Available from <https://arogya.maharashtra.gov.in/1113/Primary-services>
7. National Health Profile. Central Bureau of Health Intelligence, Director General of Health Services, Ministry of Health and Family Welfare, Government of India. Available from <http://cbhidghs.nic.in/sitemap.asp>
8. National Health Bill, 2009, MoHFW, GoI Working Draft: Version January 2009. http://www.prsindia.org/uploads/media/Draft_National_Bill.pdf
9. Maji D, Hutin Y, Ramakrishnan R, Hossain S, De S. Strategies to improve the performance of female health workers in West Bengal: A cross-sectional survey. *Natl Med J India* 2010 May-Jun; 23(3): 137-42
10. Nair VM, Thankappa KR, Sarma PS. Changing roles of grass-root level health workers in Kerala, India. *Health Policy Plan* 2001; 16(2): 171-79