

EFFECTIVENESS OF CAPACITY BUILDING PROGRAM FOR NURSES USING ECHO MODEL

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Abstract

Aim: To assess the effectiveness of capacity building program for Nurses using ECHO model.

Objectives:

- To compare the pre and post test scores of the capacity building program
- To assess the compliance of the participants for the capacity building program
- To assess the opinion of the participants regarding the capacity building program
- To assess the effectiveness of the capacity building program

Materials & Methods: The research design used for the study was one group pretest post-test design. Sample of the study, selected by non-probability convenient sampling, were 83 nurses working in the obstetric wards (ANC, PNC, Labour room, Labour OT, Obstetric OPD) including student interns of B. Sc. Nursing and GNM programs, who registered and attended the sessions of the capacity building program. Pretest was conducted using google forms to assess the knowledge of the nurses. Capacity building program including expert sessions on evidenced based maternal and child health practices through ECHO India virtual platform for a duration of 10 weeks. Post test was done using google forms. Feedback was collected using google forms to assess the opinion and attendance sheet was used to find out the compliance of the nurses. Data was analysed using descriptive and inferential statistics.

Result: In all sessions, posttest mean score was higher than pretest mean score. There was a significant improvement in the knowledge scores at 0.05 level of significance. There Mean attendance score for first half and second half sessions were 79.2 and 69.6 respectively. 62.92% participants felt that the sessions were excellent and informative.

Conclusion: The results of the study proved that capacity building program using ECHO model had a significant effect in improving the knowledge of Nurses.

Keyword: Capacity building program, Nurses, ECHO model

INTRODUCTION

Pregnancy and childbirth is one the most memorable events of a woman's life. Almost 32000 women still lose their lives due to pregnancy related causes in India. This can be attributed to the lack of accessibility of services, unskilled care providers, high cost of health care and lack of awareness. Midwifery model of care is an answer to address all these issues and to promote cost effective care. Ministry Of health and family welfare(MoHFW), Government of India has started various programs to put this into practice, including the Midwife led clinics, nurse practitioner course and capacity building programs for the midwives and midwifery educators.

Healthy mother and baby must be the aim of every midwife who attends to the woman during her antepartum, intrapartum and postpartum period. For this the midwives must be equipped with the recent advances in obstetric care. Implementation of evidence-based practice (EBP) by the midwives is necessary for the women to receive high quality obstetric care in during her journey of motherhood. EBP enables the midwives for integration of recent scientific evidences and thereby remain

updated in the field of midwifery practice. Being a problem solving approach, EBP enhances the decision making and clinical skills which ensures individualized woman centred care. It is a challenging task for the midwives to incorporate the continually changing midwifery knowledge and skills based on the research evidences, in their practice. Therefore, a gap exist between the new knowledge gained by the researchers and what is in practice in the clinical setting. Capacity building of the midwives is crucial in bridging the gap and empowering them. Multiple capacity building programs have been implemented in various countries to equip the nurses and midwives and their effectiveness have been studied. A study was done among Vietnamese nurses' in 2014 to identify the effects of capacity building programs on their knowledge, and attitude related to basic-trauma and maternal-child nursing. The results showed an increase in the post test knowledge scores of the nurses although it was not statistically significant. But their attitude towards judging their peers showed a significant increase statistically. The feasibility of implementing an internet-based capacity building program for interdisciplinary midwifery-led teams in

Ethiopia, Kenya Malawi and Somalia using the Swedish care model MIDWIZE was studied qualitatively in 2021. The results proved that the programme was appropriate to strengthen the available human resources for improved outcomes of maternal and newborn health.

Project ECHO is a collaborative educational model in medicine that focuses on increasing healthcare workforce in rural and underserved areas. It works on the ECHO model which is based on 4 principles (figure 1).



Figure 1: The Echo Model

Over 400 partners in 38 countries have implemented this model and are working across more than 70 focus areas. K. J. Somaiya School and College of Nursing is one of the ECHO India learning hub. We, as the ECHO hub studied the effectiveness of the capacity building program on the nurses in terms of their pre and post test scores and their compliance in attending the sessions regularly.

PROBLEM STATEMENT

Effectiveness of capacity building program on nurses using ECHO model

OBJECTIVES OF STUDY

- To compare the pre and post test scores of the capacity building program
- To assess the compliance of the participants for the capacity building program
- To assess the opinion of the participants regarding the capacity building program
- To assess the effectiveness of the capacity building program

OPERATIONAL DEFINITION

EFFECTIVENESS: In this study, effectiveness refers to the difference in the pre and post test scores assessed using google forms. It also refers to the compliance of the participants in attending the sessions of the capacity building program.

CAPACITY BUILDING PROGRAM: It refers to the empowerment in knowledge and skill of nurses for implementation of best evidence based maternal and child health practices organized by K. J. Somaiya school and college of nursing in collaboration with ECHO India. Ten weeks program was conducted once a week for 2hrs. This virtual programs included pre-test, case presentation, expert session, discussions, post-test and feedback. The details of the sessions are as follows (Table 1):

Table 1: Capacity Building Program

Week	Name of the Topic
1 st	Caring of the antepartum patient, safe delivery app and technical approach
2 nd	Electronic foetal monitoring
3 rd	COVID and Pregnancy
4 th	Labour and delivery management. Advancement in delivery practices.
5 th	Assisted delivery and caesarean section
6 th	Care of post partum patient Breast feeding – EBP
7 th	Obstetrical emergencies and its management
8 th	Issues in elderly mothers. Assisted reproductive techniques.
9 th	Family planning Revised Family welfare programme
10 th	Independent nurse midwifery practitioner. Future scope of Nursing

NURSES: Nurses in this study refers to the participants of the capacity building program who work in the obstetric wards (ANC, PNC, Labour room, Labour OT, Obstetric OPD). It includes staff nurses, ward in charges and student interns of B.Sc. Nursing and GNM program.

HYPOTHESIS

H0- There is no significant difference between the mean pre and post test scores of the capacity building program

H1- There is significant difference between the mean pre and post test scores of the capacity building program

ASSUMPTIONS

1. Nurses have basic knowledge about the maternal and child health practices
2. Capacity building program may be able to update the nurses on recent evidence based practices.
3. Continuing education is a means for empowering nurses.

REVIEW OF LITERATURE

A study was done in Vietnam in 2014 among the nurses to assess the effects of capacity building programs on their knowledge and attitude regarding basic-trauma and maternal child nursing. 31 nurse managers and 320 general nurses from different hospitals were included. Participants with more than 10 years of experience expressed the need for further training. There was an increase in the post test knowledge scores which was not statistically significant whereas there was a significant improvement in the attitude of the participants after the capacity building program.¹

Effective health leadership and management are crucial for resilient health systems, but access to relevant training opportunities is often limited. A study by Tudor Car, L., Kyaw, B.M. & Atun, R aimed to assess the effectiveness of eLearning for capacity building in healthcare leadership and management. The systematic review found no evidence on the effectiveness of eLearning in this specific area, highlighting a lack of research on the topic. While there is some descriptive evidence on the effectiveness of health leadership and management education in general, there is a need for more rigorous studies. The use of eLearning could help improve access to training and tailor it to individual needs. Future research should focus on diverse settings, experimental designs, evaluating the use of technology, and assessing health system outcomes.²

Santhoshkumari M and Sharmil S.H. conducted a systematic review in 2022 to identify the literature evidence of the efficacy of various educational interventions training in the management of obstetric complications. 16 studies published from 2011 to 2021 from PUBMED, Web of Science, SCOPUS, Google Scholar, Cochrane, and maternity care databases were reviewed that examined the assessment of skills among healthcare providers such as nurses, midwives, ANMs, medical students, interns, and doctors following different educational interventions. The findings suggest that with improved training, education, resources, and collaboration with specialists, nurses and midwives can effectively fulfill their roles in providing care, including diagnosis, intervention, advanced care, patient education, and emotional support. The effectiveness of educational interventions varies depending on participants' comprehension, engagement, and the teaching methods employed. Among the interventions studied, mobile applications and simulation-based training were found to be particularly effective in enhancing knowledge and skills in managing obstetric complications.³

In order to enhance nursing education capacity in Cambodia, two bridging programmes were established for the Bachelor of Science in Nursing, both within the country and in Thailand. A descriptive qualitative study conducted by Koto-Shimada K, Yanagisawa, S, Boonyanurak P, and Fujita N assessed the effectiveness of these programmes and sought to identify further needs for the development of nursing education. Through interviews with 34 current or past participants and 10 institution managers, the study identified key areas of impact such as new learning content, personal outcomes, challenges faced, and future needs. Participants highlighted the importance of new content areas and active teaching strategies, particularly in the out-of-country programme. They also expressed ongoing needs for curriculum revision, standardization of nursing curricula, and improvements in teaching infrastructure upon returning to their workplaces. The study also resulted in the creation of a theoretical model for Nursing Capacity Building in Developing Countries, emphasizing the importance of planning and utilizing strategies at both the grassroots and institutional levels.⁴

In a study conducted by Talwar Alisha, Verma Madhavi, and Sharma Tarika in 2020, a pre-experimental design with a one group pre-test post-test was used to assess the impact of a Capacity Building Program on nurses' utilization of Assessment Scales for critically ill patients. The study involved 36 nurses working in the Liver Coma ICU at ILBS and utilized an Observation Checklist to evaluate their practice in using Assessment Scales (such as the Glasgow Coma Scale, Pupil Reaction Scale, and Modified Ramsay Sedation Scale). The results showed a significant improvement in nurses' practice scores from the pre-test to the post-test, indicating that the program was effective in enhancing their skills in using Assessment Scales for critically ill patients.⁵

In 2021, a study by Erlandsson et al. explored the effectiveness of implementing an internet-based capacity building program using the Swedish care model MIDWIZE for interdisciplinary midwifery-led teams in Ethiopia, Kenya, Malawi, and Somalia. Focus group discussions were conducted with policy leaders, academicians, and clinicians who participated in the program, both before and after the intervention. The study found an increase in the adoption of dynamic birthing positions, delayed umbilical cord clamping, and skin-to-skin care for newborns postnatally following the intervention. Participants expressed that the online program was suitable for their countries' needs, including a desire for improved leadership, collaboration,

human resources, and maternal and newborn health outcomes. The study suggests that similar online capacity building programs could be expanded in sub-Saharan African countries with the support of local stakeholders to advance maternal and child health.⁶

Suprpto, S., Rifdan, R., & Gani, H. A. (2021) conducted a qualitative research study using a case study approach to examine the development of nurses' skills in hospital healthcare services. Data was collected through interviews, observations, and literature reviews. The findings indicated that there is a need to enhance the capacity building process for nurses, particularly in terms of their spiritual and technological skills, in order to enhance the quality of health services provided. The study concluded that in order to enhance healthcare services, capacity building for nurses should incorporate both spiritual and technological aspects.⁷

RESEARCH METHODOLOGY

Research approach

This study used a quantitative approach. This study was intended to assess the effectiveness of capacity building program on nurses.

Research design

The research design utilized is quasi experimental one group pretest post test design (table 2)

Table 2: Research design

O1	X	O2
Pretest using google forms to assess the knowledge of the nurses	Expert sessions during the capacity building program on evidenced based maternal and child health practices on ECHO India virtual platform	Post test using google forms, feedback using google forms to assess the opinion and attendance sheet to find out the compliance of the nurses.

Variables

Independent variables- Capacity building program

Dependent variable- Effectiveness

Setting

The study was conducted by K. J. Somaiya ECHO hub team, through ECHO India virtual platform as a part of project ECHO.

Population

Population consisted of nurses working in the obstetric wards (ANC, PNC, Labour room, Labour OT, Obstetric OPD) including student interns of B. Sc. Nursing and GNM programs.

Target Population

This consisted of nurses working in the obstetric wards (ANC, PNC, Labour room, Labour OT, Obstetric OPD) including student interns of B. Sc. Nursing and GNM programs, who were accessible online.

Sample and sample size

Sample of the study were 83 nurses working in the obstetric wards (ANC, PNC, Labour room, Labour OT, Obstetric OPD) including student interns of B. Sc. Nursing and GNM programs, who registered and attended the sessions of the capacity building program.

Sampling technique

Sampling technique chosen was non probability convenient sampling. A brochure was circulated through the social media with the registration link and the details of the session enclosed. Those who were accessible and registered through the link became the participants of the study.

Criteria of selecting sample

❖ Inclusion Criteria:

- o Nurses/Interns working in the obstetric wards (ANC, PNC, Labour room, Labour OT, Obstetric OPD)
- o Nurses who were able to access internet.
- Those who were willing to participate in the study.

❖ Exclusion Criteria:

- o Nurses who were working in areas other than midwifery & Obstetrics.

Technique for data collection

The technique for data collection was self-reporting through google forms and attendance sheet through iECHO platform.

Tool

It consisted of four sections

Section A: Personal profile of participants

Section B: Assessment google sheet of each session.

It consisted of structured questionnaire with 8-10 questions per session

Section C: feedback of the participants regarding the sessions.

It consisted of 5 point likert scale

Section D: attendance sheet of the participants

Attendance of the participants for the sessions were collected through the iECHO platform

Validity and Reliability

The pre and post test questions were prepared by the expert speakers for each session and was validated by the ECHO hub team. The feasibility of the program was established by conducting a prelaunch of 2 hours duration through the iECHO platform. The participants could register and attend the session without any difficulty.

Data Collection method

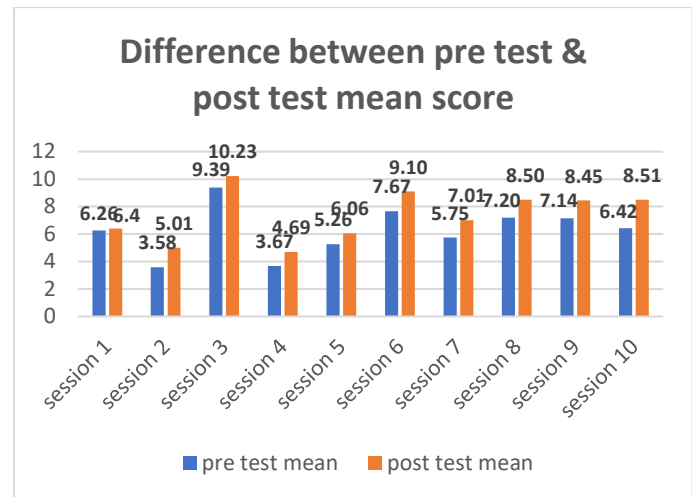
Capacity building program was conducted once a week for 10 weeks. The participants of the study registered on iECHO platform, prior to the commencement of the program in which they gave consent to share the data. Data collection was done by self-reporting method using google form during the pre and post-test of each session. Attendance of the participants were tracked using iECHO platform Each session was followed by feedback from the participants collected through google forms. Data analysis was done using descriptive and inferential statistics.

ANALYSIS AND INTERPRETATION OF DATA

Capacity Building Program for nurses was conducted through 10 sessions. Data analysis and interpretation done as follows:

Section B: Analysis and interpretation of pretest and post test score

Graph 1: Difference between pre test and post test mean score



Graph 1 represents pre test and post test mean score of ten sessions capacity building program for nurses. From above graph, it is evident that in all sessions, post test mean score was higher than pre test mean score.

Table 3: Paired t test results

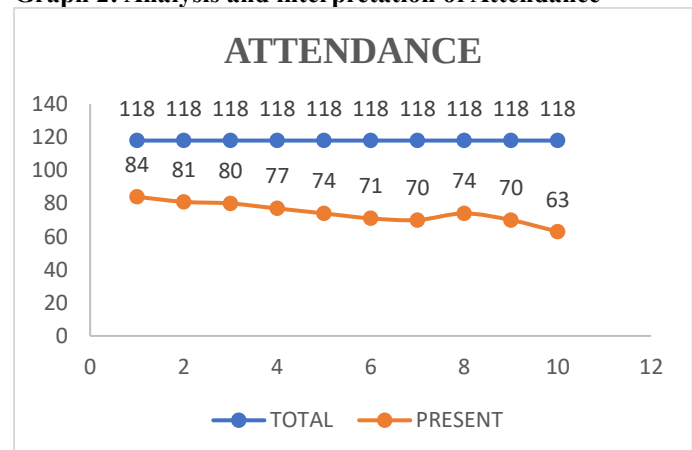
Group	Pretest	Post test	df	CI	Paired t test
Mean	6.2340	7.3960	9	0.162	7.1838
SD	1.7830	1.8393			
SEM	0.5638	0.5816			

P value and statistical significance:

The two-tailed P value is less than 0.0001. By conventional criteria, this difference is extremely statistically significant (table 2)

Section 2

Graph 2: Analysis and interpretation of Attendance



Total 10 sessions were conducted for Capacity Building Program for Nurses on Best Maternal and Child Health Practices ECHO. 118 participants had registered for the programme out of which around 70% participants attended initially which declined to around 53% in the later sessions (graph 2).

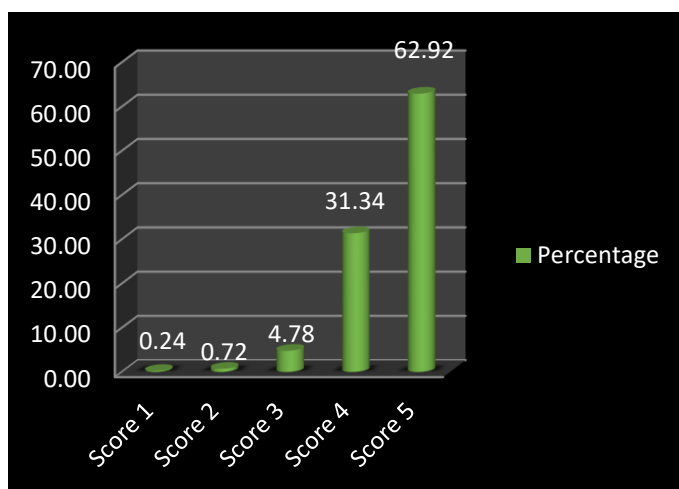
Attendance line graph is declining from session 1 to session 10 except for session 8. Mean attendance score for first half and second half session is 79.2 and 69.6 respectively. It indicates that as length of program extended, attendance declines. So for better outcome short duration program can be planned.

Section 3: Analysis and interpretation of Feedback

Table 4: Analysis and interpretation of Feedback

Questions	Options	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7	Session 8	Session 9	Session 10	Mean
The objectives of the session were met	Neutral	3	3	4	2	2	2	1	2	4	1	2.4
	Strongly Agree	30	24	21	16	19	18	16	10	20	12	18.6
	Agree	21	27	21	14	19	20	19	14	23	14	19.2
	Disagree	0	0	0	0	0	0	2	0	0	0	0.2
	Strongly Disagree	1	3	0	1	1	3	2	0	2	1	1.4
Information given on topic was new and updated and added to my knowledge and skills	Neutral	3	3	5	1	2	2	2	2	4	1	2.5
	Strongly Agree	26	24	20	15	22	20	14	9	19	13	18.2
	Agree	25	28	21	16	17	19	21	15	23	13	19.8
	Disagree	0	0	0	0	0	0	1	0	0	0	0.1
	Strongly Disagree	1	2	0	1	0	2	2	0	3	1	1.2
I will practically implement knowledge and skills provided	Neutral	1	3	3	3	3	1	3	2	3	1	2.3
	Strongly Agree	30	25	24	15	15	18	13	11	19	14	18.4
	Agree	23	26	19	14	23	21	23	13	26	12	20
	Disagree	0	0	0	0	0	0	0	0	0	0	0
	Strongly Disagree	1	3	0	1	0	3	1	0	1	1	1.1
Do you want more information related to this topic?	No	9	9	8	6	6	8	9	6	14	8	8.3
	Maybe	13	15	18	13	15	16	7	8	19	10	13.4
	Yes	33	33	20	14	20	19	24	12	16	10	20.1
Did you present a case today?	No	44	47	43	27	35	36	33	23	42	24	35.4
	Yes	11	10	3	6	6	7	7	3	7	4	6.4
Did you learn something new from the discussions of cases presented by others today?	No	1	2	4	1	2	2	1	2	5	2	2.2
	Yes	54	55	42	32	39	41	39	24	44	26	39.6
On a scale of 1 to 5, how would you rate speaker's presentation skills?	1	0	1	0	0	0	0	0	0	0	0	0.1
	2	2	0	1	0	0	0	0	0	0	0	0.3
	3	4	1	5	1	1	2	2	1	2	1	2
	4	22	15	18	11	9	19	14	6	12	5	13.1
	5	27	40	22	21	31	22	24	19	35	22	26.3

Feedback was taken for all the 10 sessions conducted. Majority of the participants gave a positive feedback (table 4).



Graph 3: Participants rating for speaker's presentation on Likerts scale 1-5.

Feedback was recorded for all 10 sessions. About 62.92% participants felt that the sessions were excellent and informative (graph 3).

IMPLICATIONS

The findings of the study have implication in various areas of Nursing namely; Nursing practice, Nursing education and Nursing research.

Nursing Practice

As nurses we can conduct various sessions for patients, nurses and nursing students on capacity building to acquire knowledge and skills in the fields of nursing.

This study provides light on the effectiveness of capacity building program on nurses.

More capacity building programs can be conducted for various groups like student nurses, community health workers etc. to acquire advance skill and knowledge and to bridge the gap between education and service.

Nursing Education

In nursing education teachers can organize various capacity building program to bridge the gap between education and service.

Nursing Administration

As a nursing administrator one can make sure about various areas in which the participants require to update their skills and knowledge.

Capacity building program can be arranged on small scale with few sessions to enhance their knowledge and skills.

Nursing Research

Nursing research should be conducted to assess the need for capacity building program and in which field it is most required.

LIMITATIONS

As the study was on online platform there was no face to face interaction or clarification of queries.

SUGGESTIONS

All the head nurse should arrange for capacity building program in their speciality area to upgrade the knowledge and skills of her team members.

Awareness program should be conducted on how capacity building program helps the participants etc.

RECOMMENDATIONS

Based on the findings of the study the following recommendations are made.

- Similar study can be conducted on larger sample
- Comparative study can be done between teaching & hospital faculty
- Practical oriented different topics can be selected
- A similar study can be replicated on different focused group for further generalization of study findings.
- A similar study can be conducted by focusing on a particular maternal problem.
- A survey can be carried out to assess the behavior of caregivers while providing care to mothers.
- A similar study can be conducted by including indirect causes of maternal complications.

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