

Effectiveness of Breast Self-Examination Training on The Skills of ASHA Workers in Selected Government Health Centers of Sangli District

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ABSTRACT

Objective

To assess the effectiveness of structured breast self-examination (BSE) training on the practical skills of Accredited Social Health Activists (ASHAs) working in selected government health centers of Sangli district, Maharashtra.

Methods

A quantitative quasi-experimental pre-test/post-test control group design was adopted. Seventy ASHA workers were selected through purposive sampling and assigned to an experimental group (n=35) and a control group (n=35). Data were collected using a demographic questionnaire and a BSE skills observational checklist. The experimental group received a one-day structured BSE training programme consisting of lecture-cum-demonstration and hands-on practice using breast models. BSE skills were assessed before the intervention and on the eighth day in both groups. Descriptive and inferential statistics were used for analysis.

Results

The experimental group demonstrated a marked improvement in BSE skills. The mean pre-test score increased from 9.40±2.92 to 21.14±2.48 after training, with a statistically significant paired t value of 24.6 (p<0.001). In the control group, the mean score increased from 9.71±3.85 to 10.94±4.02, which was not statistically significant (t=1.7, p>0.05). The post-test mean score was significantly higher in the experimental group than in the control group (21.14±2.48 vs. 10.94±4.02; t=12.8, p<0.001). Following training, 97% of experimental-group participants demonstrated good competence compared with 11% of controls. Baseline BSE skill was significantly associated with age, educational level and years of ASHA experience.

Conclusion

Structured, skill-based BSE training was highly effective in improving the practical BSE skills of ASHA workers. Regular competency-based training of frontline health workers may strengthen community-level breast health promotion and early detection activities.

Keywords: Breast self-examination; BSE training; ASHA workers; community health workers; breast cancer; health education.

INTRODUCTION

Breast cancer is one of the most common cancers affecting women worldwide and represents an important public health concern.¹ Early recognition of breast abnormalities and timely access to diagnostic services are important components of breast cancer control.² Breast self-examination (BSE) is a simple, inexpensive and non-invasive method through which women can become familiar with the normal appearance and feel of their breasts and recognize changes that warrant professional assessment.³ Although BSE does not replace recommended clinical assessment or organized screening, breast health awareness can support timely consultation when abnormalities are identified.

The burden of breast cancer has increased substantially in India, making community-level awareness and early detection particularly important.⁴ Delayed presentation is a continuing challenge, especially where women face limited access to health services, low health literacy, stigma and misconceptions related to breast cancer.⁵ These barriers can contribute to delayed recognition and treatment.

Accredited Social Health Activists (ASHAs) are frontline community health workers who serve as an important link between communities and the public health system.⁶ Their close contact with women and families provides an opportunity to disseminate health information, encourage appropriate health-seeking behaviour and facilitate referral to health facilities. However, effective community education depends on adequate knowledge, communication ability and practical competency among ASHA workers.

Previous literature has identified gaps in the knowledge and skills of community health workers regarding breast cancer and BSE.⁷ Structured educational interventions incorporating demonstration and practice may improve the ability of frontline workers to communicate health information and perform health-related skills.⁸ Therefore, competency-based training of ASHA workers may be a practical strategy for strengthening breast cancer awareness activities at the community level.

The present study was undertaken to assess the effectiveness of a structured BSE training programme on the skills of ASHA workers in selected government health centers of Sangli district, Maharashtra.

Objectives

1. To assess the pre-intervention BSE skill scores of ASHA workers in the experimental and control groups.
2. To assess the post-intervention BSE skill scores of ASHA workers in the experimental and control groups.
3. To compare pre- and post-intervention BSE skill scores within the experimental and control groups.
4. To compare post-intervention BSE skill scores between the experimental and control groups.
5. To determine the association between pre-intervention BSE skill scores and selected demographic variables.

MATERIALS AND METHODS

Research design and setting

A quantitative research approach with a quasi-experimental pre-test/post-test control group design was adopted. The study was conducted among ASHA workers working in selected government health centers of Sangli district, Maharashtra.

Participants and sampling

The study included 70 ASHA workers, with 35 participants in the experimental group and 35 in the control group. Non-probability purposive sampling was used for participant selection.

Inclusion criteria

ASHA workers were eligible if they:

- were currently working at the selected primary health centers/sub-centers;
- were accessible during the period of data collection; and
- were willing to participate in the study.

Exclusion criteria

ASHA workers who were not currently employed or were on long-term leave during the period of data collection and training were excluded.

Study instruments

Data were collected using two instruments:

1. **Demographic questionnaire:** This collected information regarding age, educational level, years of experience as an ASHA worker, previous BSE training and source of previous training.
2. **BSE skills observational checklist:** Practical BSE performance was assessed using an observational checklist based on the stated WHO criteria. The maximum score was 24. Scores were categorized as poor (0–8), average (9–16) and good (17–24).

Intervention

The experimental group received a one-day structured BSE training programme. The intervention consisted of lecture-cum-demonstration followed by hands-on practice using breast models. The training focused on the appropriate sequence and practical performance of BSE.

After the pre-test, the experimental participants received approximately 10–15 minutes of BSE instruction followed by re-demonstration and evaluation using the skills checklist. The entire assessment and training-related data collection required approximately 45 minutes per participant.

The control group did not receive the structured BSE training during the intervention period.

Data collection procedure

On day one, pre-intervention BSE skills were assessed in both groups. The experimental group subsequently received the structured BSE training. On the eighth day, BSE skills were reassessed in both experimental and control groups using the same observational checklist.

Data analysis

Data were organized and analyzed using descriptive and inferential statistics. Frequency and percentage were used to describe categorical variables. Mean and standard deviation were used to summarize skill scores. Paired t tests were used to compare pre- and post-intervention scores within groups, while an unpaired t test was used to compare post-intervention scores between groups. Chi-square analysis was used to determine associations between pre-intervention skill categories and selected demographic variables. Statistical significance was considered at $p < 0.05$.

Ethical considerations

Participation was voluntary and confidentiality of participant information was maintained. Institutional permission was obtained before data collection.

Ethics committee approval: The manuscript should include the Institutional Ethics Committee name, approval number and date before submission because the journal requires ethics approval for applicable original research. [Insert verified details.]

RESULTS

Demographic characteristics

Seventy ASHA workers participated in the study. In the experimental group, the largest proportion of participants belonged to the 31–40-year age group (40%), followed by 20–30 years (29%), 41–50 years (23%) and above 50 years (8%). In the control group, 37% were aged 31–40 years, 43% were aged 20–30 years, 14% were aged 41–50 years and 6% were above 50 years.

Regarding educational level, most participants had primary education, comprising 51% of the experimental group and 63% of the control group. Secondary education accounted for 31% and 26%, respectively, while 17% of the experimental group and 11% of the control group had graduate-level education or above.

Most participants had less than five years of experience as ASHA workers (60% experimental; 69% control). Only 11% of the experimental group and 8% of the control group had more than ten years of experience.

Previous formal BSE training was reported by only 23% of experimental-group participants and 17% of control-group participants. Thus, the majority of participants had not received previous formal BSE training.

Table 1. Demographic characteristics of ASHA workers

Variable	Experimental n (%)	Control n (%)
Age		
20–30 years	10 (29)	15 (43)
31–40 years	14 (40)	13 (37)
41–50 years	8 (23)	5 (14)
>50 years	3 (8)	2 (6)
Education		
Primary	18 (51)	22 (63)
Secondary	11 (31)	9 (26)
Graduate and above	6 (17)	4 (11)
Experience		
<5 years	21 (60)	24 (69)
5–10 years	10 (29)	8 (23)
>10 years	4 (11)	3 (8)
Previous BSE training		
Yes	8 (23)	6 (17)
No	27 (77)	29 (83)

Pre- and post-intervention competence

At baseline, poor BSE competence was observed among 49% of participants in the experimental group and 60% in the control group. Only 5% of the experimental group and 11% of the control group demonstrated good competence before the intervention.

After the intervention, the experimental group showed a substantial shift towards good competence. Thirty-four participants (97%) achieved good competence, while only one participant (3%) remained in the average category. No participant remained in the poor category.

In contrast, the control group demonstrated limited change. Eleven participants (31%) remained in the poor category, 20 (57%) demonstrated average competence and only four (11%) demonstrated good competence.

Table 2. Distribution of BSE skill competence before and after intervention

Competence level	Experimental Pre n (%)	Experimental Post n (%)	Control Pre n (%)	Control Post n (%)
Poor (0–8)	17 (49)	0 (0)	21 (60)	11 (31)
Average (9–16)	16 (46)	1 (3)	10 (29)	20 (57)
Good (17–24)	2 (5)	34 (97)	4 (11)	4 (11)

Within-group comparison

The experimental group's mean BSE skill score increased from 9.40 ± 2.92 at pre-test to 21.14 ± 2.48 at post-test. The mean difference was statistically significant ($t=24.6$, $p<0.001$), demonstrating a substantial improvement following the training.

The control group's mean score increased only slightly, from 9.71 ± 3.85 to 10.94 ± 4.02 . This change was not statistically significant ($t=1.7$, $p>0.05$).

Table 3. Comparison of pre- and post-intervention BSE skill scores

Group	n	Pre-test Mean $\pm$ SD	Post-test Mean $\pm$ SD	t	p
Experimental	35	9.40 ± 2.92	21.14 ± 2.48	24.6	<0.001
Control	35	9.71 ± 3.85	10.94 ± 4.02	1.7	>0.05

Between-group comparison

The post-intervention mean BSE skill score was 21.14 ± 2.48 in the experimental group compared with 10.94 ± 4.02 in the control group. The difference was statistically significant ($t=12.8$, $p<0.001$), indicating substantially better performance among ASHA workers who received the structured training.

Table 4. Comparison of post-intervention BSE skill scores between groups

Group	n	Mean $\pm$ SD	t	p
Experimental	35	21.14 ± 2.48	12.8	<0.001
Control	35	10.94 ± 4.02		

Association with demographic variables

Chi-square analysis demonstrated statistically significant associations between pre-intervention BSE skill level and age ($\chi^2=9.2$, $p=0.026$), educational level ($\chi^2=8.1$, $p=0.017$) and years of experience ($\chi^2=7.4$, $p=0.024$).

Previous BSE training was not significantly associated with pre-intervention skill scores ($\chi^2=2.3$, $p=0.129$). Similarly, source of previous training did not demonstrate a statistically significant association ($\chi^2=2.3$, $p=0.129$).

Table 5. Association between demographic variables and pre-intervention BSE skill

Variable	χ^2	df	p	Interpretation
Age	9.2	3	0.026	Significant
Educational level	8.1	2	0.017	Significant
Years of experience	7.4	2	0.024	Significant
Previous BSE training	2.3	1	0.129	Not significant
Source of training	2.3	1	0.129	Not significant

DISCUSSION

The present study found that the majority of ASHA workers were aged 31–40 years, had primary-level education and had less than five years of experience. Previous formal BSE training was uncommon in both groups. These

findings indicate an important training gap among frontline workers who may be expected to participate in community-based health education.

A similar pattern has been reported among community health workers. Kazi et al. reported that a substantial proportion of community workers belonged to the 30–39-year age group and had relatively limited work experience.¹¹ These characteristics highlight the need for practical and easily reproducible training approaches for community health personnel.

The baseline BSE skills in the present study were relatively low. Nearly half of the experimental group and 60% of the control group were classified as having poor competence before intervention. Only 5% and 11%, respectively, demonstrated good competence. These findings suggest that being a frontline health worker does not necessarily ensure adequate practical competency in BSE.

Khapre et al. reported limited baseline awareness of breast cancer and BSE among community participants in Uttarakhand and demonstrated improvement following an educational intervention.¹² The similarity in the low baseline level of competence reinforces the importance of structured breast health education in community settings.

The major finding of the present study was the substantial improvement in practical BSE skills following structured training. The experimental group's mean score increased from 9.40 ± 2.92 to 21.14 ± 2.48 , with a highly significant paired *t* value of 24.6 ($p < 0.001$). Furthermore, the proportion of participants with good competence increased from 5% to 97%.

This improvement is consistent with previous intervention-based studies involving community health workers. Educational programmes that combine explanation, demonstration and opportunities for return demonstration can improve both understanding and practical performance. The present findings support the use of hands-on skill training rather than relying exclusively on conventional classroom-based health education.

The control group showed only a small increase in mean skill score, from 9.71 ± 3.85 to 10.94 ± 4.02 , and the change was not statistically significant. The difference between the two groups at post-test was substantial and statistically significant, with a mean score of 21.14 in the experimental group compared with 10.94 in the control group ($t = 12.8$, $p < 0.001$). This provides strong evidence within the present study that the structured training contributed to the observed improvement.

Previous studies have similarly demonstrated that structured educational interventions can improve breast cancer knowledge and BSE-related skills among community health workers. One intervention involving ASHA workers reported marked improvement in breast cancer awareness and recall of BSE steps following training. Another quasi-experimental study among community health workers in Mumbai demonstrated significant improvement in knowledge following an educational intervention. These findings, together with the present results, support the value of competency-based community health worker education.

The present study also identified significant associations between baseline BSE skill and age, educational level and years of experience. Older ASHA workers, those with higher educational attainment and those with longer work experience demonstrated comparatively better baseline competence. This suggests that individual background characteristics may influence initial skill acquisition.

In contrast, previous BSE training and its source were not significantly associated with baseline competence. This finding may indicate that previous exposure to information alone does not necessarily translate into practical skill. Training that includes demonstration, supervised practice and return demonstration may be more effective in developing competency.

The findings have implications for community-level breast cancer prevention. ASHAs are strategically positioned to reach women in rural and underserved communities. The World Health Organization has emphasized the importance of strengthening early detection and community-based approaches as components of comprehensive breast cancer control.¹³ Equipping frontline workers with practical BSE communication and demonstration skills may therefore contribute to improved awareness and timely referral.

However, BSE should be presented as a breast-health awareness and self-familiarity practice rather than as a substitute for recommended screening or clinical evaluation. ASHA training should emphasize referral of women with breast abnormalities to appropriate health facilities rather than attempting to establish a diagnosis at community level.

STRENGTHS OF THE STUDY

The study used a quasi-experimental control group design and assessed an objectively observable practical skill. The intervention included demonstration and hands-on practice using breast models, making the training suitable for community health workers. The inclusion of a control group also allowed comparison of changes occurring without the structured intervention.

LIMITATIONS

The study had several limitations. First, the sample size was relatively small and only 70 ASHA workers participated. Second, purposive sampling limits the generalizability of the findings to all ASHA workers. Third, the study was conducted in selected government health centers of one district. Fourth, post-intervention assessment was performed on the eighth day; therefore, long-term retention of BSE skills could not be established. Finally, the study focused on practical BSE skills and did not assess whether improved ASHA competency subsequently resulted in increased BSE awareness, screening uptake or early presentation among women in the community.

IMPLICATIONS FOR NURSING AND COMMUNITY HEALTH PRACTICE

The findings indicate that structured BSE training can be incorporated into continuing education programmes for ASHA workers. Nurses and nurse educators can collaborate with primary healthcare teams to provide periodic skill-based training using demonstration and return-demonstration methods.

Refresher sessions may be particularly useful for workers with limited educational attainment or shorter service experience. Training programmes should include breast health awareness, appropriate BSE demonstration, identification of warning signs, communication strategies and referral pathways.

At the health-system level, standardized BSE competency checklists can be used to assess and reinforce ASHA performance during routine supervisory visits.

CONCLUSION

The present study demonstrated that structured BSE training significantly improved the practical BSE skills of ASHA workers. The experimental group's mean skill score increased from 9.40 ± 2.92 before intervention to 21.14 ± 2.48 after training, while 97% of participants achieved good competence. In contrast, the control group showed no statistically significant improvement.

Age, educational level and years of experience were significantly associated with baseline BSE skill, whereas previous BSE training and its source were not significantly associated.

The findings support the integration of regular, structured and competency-based BSE training into continuing education programmes for ASHA workers. Strengthening the skills of frontline health workers may improve community breast-health education and facilitate timely referral of women with concerning breast symptoms.

RECOMMENDATIONS

1. Similar studies should be conducted with larger and more representative samples of ASHA workers.
2. Replication in different geographical and healthcare settings is recommended.
3. Long-term follow-up should be conducted to assess retention of BSE skills.
4. Future studies may compare different teaching methods for BSE training.
5. Community-based breast health education programmes involving trained ASHA workers should be strengthened.
6. Future research should assess whether improvement in ASHA skills translates into increased community awareness, appropriate referral and utilization of breast cancer screening services.

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AUTHOR CONTRIBUTIONS

Pallavi Ananda Kadam contributed to the conception, data collection and preparation of the manuscript. Vijaya Rahul Kumbhar contributed to study supervision, methodological guidance, interpretation of findings and manuscript review. Sindhu Gaikwad, Archana Dhanwade, Seema Geddugol and Tejswini Chougule contributed to study coordination, review and final approval of the manuscript. All authors approved the final version.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICAL APPROVAL

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