Research Article

Assessment of Factors Associated with Breast Self-Examination among Health Extension Workers in West Gojjam Zone, Northwest Ethiopia

MulukAzage, Gedefaw Abeje, and Alemtsehay Mekonnen

Department of Public Health, College of Medicine and Health Sciences, Bahir Dar University, P.O. Box 79, Bahir Dar, Ethiopia

Correspondence should be addressed to Muluk Azage; mulukenag@yahoo.com

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Background. Early detection of breast cancer using breast self-examination (BSE) plays an important role in decreasing its morbidity and mortality. Objective. To identify factors associated with BSE among health extension workers in Northwest Ethiopia. Methods. Cross-sectional study design was employed from October to November, 2012 in West Gojjam Zone of Amhara region. Simple random sampling technique was used to recruit a total of 390 health extension workers (HEWs). A structured Amharic questionnaire was used to collect the data. Data were entered and analyzed using SPSS statistical package version 16.0. Result. This study found that 37% of HEWs had ever practiced BSE and 14.4% practiced it regularly. The three main reasons for not doing regular BSE were no breast problem (53.2%), not knowing the technique of BSE (30.6%), and not knowing the importance of BSE (21.4%). Discussion with families on BSE and history of breast examination by health professionals were found significantly associated with ever practice of BSE. Conclusion. BSE practice was found low in this study. Having information on the importance of BSE was predictor of BSE practice. Therefore, it is important to give training on BSE techniques and its role on breast cancer prevention for HEWs.

1. Introduction

Globally, about 25 million people are living with cancer [1]. Recent estimates showed that cancer incidence will almost triple by 2030, with 20–26 million new cancer diagnoses and 13–17 million deaths [2]. Cancer is the second leading cause of death in the world. More than 70% of all cancer deaths occurred in low and middle-income countries [1, 3].

Of all types of cancers, breast cancer is the most common cancer among women both in developing and developed countries [4, 5]. It is the leading cause of death among women aged between 40 and 55 years [6]. Recent global cancer statistics indicated that breast cancer incidence is rising at a faster rate in populations of developing countries [7, 8]. Several studies reported that breast cancer is the most common cancer, and is the principal cause of cancer deaths in women and is therefore a world concern [9–17].

Early detection of breast cancer plays an important role in decreasing its morbidity and mortality. Breast self-examination (BSE) is one of the screening methods for early detection of breast cancer [18–20]. However, women in developing countries do not perform breast self-examination for various reasons [21].

Cancer was reported the second out of the ten top cancers registered at Tikur Anbesa Radiotherapy center [6]. Most healthcare facilities in Ethiopia do not have advanced laboratory investigations for diagnosing breast cancer. In resource scarce countries like Ethiopia, BSE should be promoted for early detection of breast cancer to prevent related morbidities and mortalities.

Therefore, the aim of this study was to determine BSE and identify factors associated with BSE among HEWs. Health extension workers (HEWs) are the main actors to implement health extension packages and to provide primary healthcare services at community level in Ethiopia. Thus, if BSE is integrated with these packages, deaths from breast cancer can be averted by early detection and treatment. Moreover, findings from the study can provide information on BSE for governmental health officials and other nongovernmental organizations which are working on health particularly on cancer to...
raise awareness amongst women about breast cancer and the role of BSE in breast cancer prevention and control.

2. Methods and Materials

Cross-sectional study design was employed in West Gojjam Zone of Amhara regional state, Ethiopia, from October to November, 2012. West Gojjam Zone is one of the 13 Zones of the region which had a total of 845 HEWs at the time of the study [22]. All health extension workers who were working at the time of the study in West Gojjam Zone were the study population. The total sample size was determined using single population proportion formula \( n = \frac{(Z_{\alpha/2})^2 P(1-P)}{d^2} \), where \( P \) = proportion of BSE among HEWs is unknown and was as assumed 50%, \( Z_{\alpha/2} \) at 95% CI (1.96) and \( d = 5\% \) margin of error (0.05). By considering 5% nonresponse, the final sample size was 403. HEWs who had mastectomy were excluded from the study. HEWs were selected by simple random sampling technique using list of HEWs of Zonal Health Office as sampling frame.

Data were collected using self-administered structured Amharic questionnaire. The questionnaire had three parts. The first part was about sociodemographic characteristics of respondents, part two was about knowledge of breast cancer and breast cancer risk factors, and the last part was about breast self-examination practice. One day training was given for data facilitators and three supervisors. The completeness of questionnaires was checked every day by supervisors and principal investigators. Pretest was done before the questionnaire was administered. Data were entered and analyzed using SPSS statistical package version 16.0. Descriptive statistics were used to summarize data. Logistic regression analysis was done to identify factors associated with breast self-examination. Adjusted odds ratios with 95% confidence intervals were calculated for each of independent variables using backward stepwise binary logistic regression model to control confounder effect for the outcome variable.

The study was conducted after getting ethical clearance from IRB of the Bahir Dar University. Permission was obtained from the respective Zonal and Woreda Health Offices. Informed verbal consent was obtained from the study participants after telling the objective of the study. Confidentiality and privacy were insured for collected information from the study participants.

3. Result

Three hundred ninety five HEWs participated in the study. The mean age of the study participants was 23.8 ± 2.7 that ranged from 16–37 years. Almost half of the study participants were married. Majority of the participants were Orthodox Christians (98%) and 91.9% had a certificate. Of the total study participants, about 29.6% and 85.1% had television and radio, respectively. Seventy two percent and 44.1% of the education status of mothers and fathers of study participants were illiterate, respectively (Table 1).

Table 1: Sociodemographic characteristics of health extension workers in West Gojjam Zone, Northwest Ethiopia, October 2012.

| Variables                      | Total study participants |
|--------------------------------|-------------------------|
|                                | Number (395) | Percent |
| **Age**                        |              |         |
| 15–24                          | 266          | 67.3    |
| 25–34                          | 126          | 31.9    |
| 35–44                          | 3            | 0.8     |
| **Marital status**             |              |         |
| Married                        | 196          | 49.6    |
| Unmarried                      | 155          | 39.2    |
| Widowed                        | 5            | 1.3     |
| Divorced                       | 7            | 1.8     |
| Union                          | 32           | 8.1     |
| **Education status**           |              |         |
| Certificate                    | 363          | 91.9    |
| Diploma                        | 32           | 8.1     |
| **Religion**                   |              |         |
| Orthodox                       | 387          | 98      |
| Muslim                         | 5            | 1.2     |
| Protestant                     | 3            | 0.8     |
| **TV at home**                 |              |         |
| Yes                            | 117          | 29.6    |
| No                             | 278          | 70.4    |
| **Radio at home**              |              |         |
| Yes                            | 336          | 85.1    |
| No                             | 59           | 14.9    |
| **Father education status**    |              |         |
| Illiterate                     | 174          | 44.1    |
| Read and write                 | 181          | 45.8    |
| Elementary school              | 22           | 5.6     |
| Secondary school and above     | 18           | 4.6     |
| **Mother education status**    |              |         |
| Illiterate                     | 285          | 72.2    |
| Read and write                 | 95           | 24.1    |
| Elementary school              | 8            | 2.0     |
| Secondary school and above     | 7            | 1.8     |

cancer from their families and/or relatives. About 59% were knowledgeable on risk factors of breast cancer. Almost half of HEWs reported that every woman is at risk of acquiring breast cancer. Three hundred twenty eight HEWs reported that breast cancer is communicable and 92.7% of the participants reported that breast cancer is a killer disease. Of the total participants, 81.3% reported that breast cancer is treatable if it is detected early and only 30.4% mentioned at least one methods of screening for breast cancer (Table 2). The methods of screening for breast cancer reported by health extension workers were clinical breast examination (22.3%), breast self examination (14.4%), mammogram (3%), ultrasound (11.1%), and X-ray (7.1%).

Of all HEWs, only 14.4% practiced BSE regularly (every month) and 147 (37.3%) HEWs reported that they practiced BSE during their life time. The three main reasons for not
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Table 2: Knowledge of HEWs on breast cancer in West Gojjam Zone, Northwest Ethiopia, October 2012.

| Variables                                      | Total study subject |   |
|------------------------------------------------|---------------------|---|
|                                                | Number (395)        | Percent |
| Knowledge of risk factors of breast cancer     |                     |   |
| Knowledgeable                                 | 233                 | 59 |
| Less knowledgeable                            | 162                 | 41 |
| Every woman has a chance of acquiring breast cancer |                     |   |
| Yes                                           | 191                 | 48.1 |
| No                                            | 204                 | 51.6 |
| Breast cancer is communicable                  |                     |   |
| Yes                                           | 67                  | 17.0 |
| No                                            | 328                 | 83.0 |
| Breast cancer is a killer disease              |                     |   |
| Yes                                           | 366                 | 92.7 |
| No                                            | 29                  | 7.3 |
| Know at least one methods of screening for breast cancer |             |   |
| Yes                                           | 120                 | 30.4 |
| No                                            | 275                 | 69.6 |
| If breast cancer is early detected, it is treatable |                     |   |
| Yes                                           | 321                 | 81.3 |
| No                                            | 74                  | 18.7 |

Table 3: Breast self examination practice among HCWs in West Gojjam Zone, Northwest Ethiopia, October 2012.

| Variable                                      | Number (395) | Percent |
|------------------------------------------------|--------------|---------|
| Ever practiced breast self-examination (n = 395) | 147          | 37.3    |
| No                                            | 248          | 62.7    |
| How frequent have you practiced BSE (n = 395)   |              |         |
| Every month                                   | 56           | 14.4    |
| Once every 6 months                          | 70           | 17.9    |
| Once every 12 months                         | 21           | 5.4     |
| Never practiced                               | 248          | 62.7    |
| Reasons for not doing breast self-examination (n = 248)* |              |         |
| I don’t have breast problem                   | 132          | 53.2    |
| I don’t think as I should be examined          | 44           | 17.8    |
| It is not comfortable                         | 5            | 2.0     |
| I don’t know the technique                     | 76           | 30.6    |
| Carelessness                                  | 22           | 8.9     |
| I don’t believe its importance                 | 11           | 4.4     |
| I don’t know its importance                    | 53           | 21.4    |
| Discussion with someone on the importance of BSE (n = 395) |              |         |
| Yes                                           | 130          | 32.9    |
| No                                            | 265          | 67.1    |
| Got information on BSE by health professional (n = 395) |              |         |
| Yes                                           | 96           | 24.3    |
| No                                            | 299          | 75.7    |
| History of breast examination by health professional? (n = 395) |              |         |
| Yes                                           | 43           | 10.9    |
| No                                            | 352          | 89.1    |

*Multiple responses are there.

In this study, ever practice of BSE was reported by 37.3% of HEWs which is inconsistent with studies done among Ethiopian female healthcare professionals in Addis Ababa (75.1%) [24], Nigerian Nurses in Lagos general hospital (89%) [11], female health workers in a Nigerian urban city (95%) [25], Egyptian nurses (56.4%) [26], nurses in United Arab Emirates (84.4%) [27], and registered Nurses in Singapore (63%) [28]. This could be due to the level of education of study participants and the availability of mass media. In this study the availability of TV in the study group was low (30%) and only 4.3% of HEWs took training on BSE.

Of all HEWs only 14.4% performed BSE on monthly basis in this study which is inconsistent with other studies done among healthcare professionals in Addis Ababa Ethiopia (35.5%), Egypt (18.8%), and Nigeria (82%) [11, 25, 26]. This could be due to the difference of education level among the study participants.

In this study, about 30.4% of HEWs mentioned at least one methods of breast cancer screening which is in comparable to the studies done in Addis Ababa, Ethiopia (81.4%), Egypt (81%), and Nigeria (80.7%) [11, 25, 26]. Similarly only doing BSE were no breast problem (53.2%), not knowing BSE technique (30.6%), and not knowing the importance of BSE (21.4%). One hundred thirty (32.9%) HEWs had discussions with families on the importance of BSE and 24.3% of participants had got information on BSE from health professionals. Almost 90% of HEWs had never examined their breast by health professionals (Table 3).

In bivariate analysis, breast problem so far, discussion with families on the importance of BSE, and history of breast examination by health professional were significantly associated with practice of BSE among HEWs (Table 4). However, discussion with families on the importance of BSE and ever had breast examination by health professionals remained significantly associated with practice of BSE by entering those variables, whose P value is less than 0.2 in multivariate analysis. Those HEWs who had discussion with families on the importance of BSE {AOR: 5.51, 95% CI: (3.45, 8.79)} is 5.51 times more likely to practice BSE than those HEWs who had no discussion with someone on the importance of BSE. Similarly those HEWs who examined their breast by health professional {AOR: 2.69, 95% CI: (1.31, 5.52)} were 2.69 times more likely to practice BSE than their counter parts (Table 4).

4. Discussion

Breast self-examination (BSE) is an important and inexpensive method for early detection of breast cancer [23].
Table 4: Factors associated with breast self-examination among HEWs in West Gojjam Zone, Northwest Ethiopia, October 2012.

| Variables                        | Ever practice of BSE | COR (95%CI) | AOR (95%CI) |
|----------------------------------|----------------------|-------------|-------------|
|                                  | Yes                  | No          |             |
| Age (years)                      |                      |             |             |
| 15–24                            | 102                  | 164         | 1.24 (0.11, 13.89) |
| 25–34                            | 44                   | 82          | 1.16 (0.75, 1.80)  |
| 35–44                            | 1                    | 2           | 1.00        |
| TV at home                       |                      |             |             |
| Yes                              | 47                   | 70          | 1.20 (0.40, 1.50)  |
| No                               | 100                  | 178         | 1.00        |
| Radio at home                    |                      |             |             |
| Yes                              | 128                  | 208         | 1.30 (0.60, 1.65)  |
| No                               | 19                   | 40          | 1.00        |
| Training on BSE                 |                      |             |             |
| Yes                              | 7                    | 10          | 1.19 (0.44, 3.20)  |
| No                               | 140                  | 238         | 1.00        |
| History of breast problem        |                      |             |             |
| Yes                              | 15                   | 11          | 2.45 (1.09, 5.49)  |
| No                               | 132                  | 237         | 1.00        |
| History of breast cancer from families/relatives | | | |
| Yes                              | 6                    | 22          | 0.43 (0.17, 1.10)  |
| No                               | 141                  | 226         | 1.00        |
| Discussion with someone on the importance of BSE | | | |
| Yes                              | 84                   | 46          | 5.86 (3.37, 9.79)  | 5.51 (3.45, 8.79)* |
| No                               | 63                   | 202         | 1.00        |
| Got information on BSE from health professional | | | |
| Yes                              | 50                   | 46          | 2.26 (1.42, 3.61)  |
| No                               | 97                   | 202         | 1.00        |
| Ever had breast examination by health professional | | | |
| Yes                              | 28                   | 15          | 3.65 (1.88, 7.10)  | 2.69 (1.31, 5.52)* |
| No                               | 119                  | 233         | 1.00        |
| Know at least one method of breast cancer examination | | | |
| Yes                              | 51                   | 69          | 1.38 (0.89, 2.14)  |
| No                               | 96                   | 179         | 1.00        |

COR: crude odds ratio, AOR: adjusted odds ratio, CI: confidence interval, BSE: breast self-examination, and HEWs: health extension workers, *P < 0.05.

24.3% of HEWs in this study had information about BSE which is inconsistent with the study done in Addis Ababa Ethiopia (77.6%), Egypt (69%), and Nigeria (46%) [11, 24, 25]. This difference could be due to the level of education of the study participants.

In this study, 59.0% of the study participants were knowledgeable about breast cancer risk factors. This result is incomparable with the studies done in Addis Ababa Ethiopia (85%), Egypt (73%), and Nigeria (63%) [11, 24, 25]. The difference may be due to difference in educational status, study area and accessibility to information, composition of the study population, and accessibility to mass media.

In many findings, practice of BSE was determined by the awareness of women or having of information of women about diagnostic methods of breast cancer [12, 15, 24–26, 29]. A study done in Nigeria reported that higher level of education was statistically significant associated with BSE practice [11]. This finding is consistent with the above findings that having information on BSE from health professional is a predictor of BSE practice, and those HEWs who examined their breast by health professional were also a significant predictor of BSE practice in this study which is consistent with other studies [24, 28].

In conclusion, practice of breast self-examination was low among health extension workers. Getting information on breast self-examination from health professional, discussion with families on the importance of BSE, and history of breast exam by health professional were the factors found associated with BSE practice. Therefore, training on breast self-examination should be given to increase the practice of breast self-examination which in turn would have the impact to avert the sever morbidity and mortality of breast.
cancer. Moreover, giving training on the techniques of breast self-examination for health extension workers is the way of reaching the wider community and the best opportunity to tackle the problem at wider perspective.

**List of Abbreviations**

| Abbreviation | Description                                      |
|--------------|--------------------------------------------------|
| AOR          | Adjusted odds ratio                              |
| BSE          | Breast self-examination                          |
| CI           | Confidence interval                              |
| COR          | Crude odds ratio                                 |
| HEW          | Health extension workers                         |
| SPSS         | Statistical packages for social science          |
| WHO          | World Health Organization                        |

**Conflict of Interests**

The authors declare that they have no conflict of interests.

**Authors’ Contribution**

Muluk Azage designed the study, developed the questionnaire, trained data collectors, supervised the data collection, analyzed the data, and wrote the paper. Gedefaw Abeje supervised the data collection, developed the questionnaire, contributed to the interpretation of the findings, and the drafting and writing of the paper. Alemtsehay Mekonnen contributed in data entry, analysis and interpretation of the findings and drafting and writing of the paper. All authors read and approved the final paper.

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