Article

Awareness, attitude, and practice regarding breast self-examination among female employees working at Islamic Azad University, Zanjan branch in 2023

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Abstract

Background: Breast cancer is a significant and serious female health concern. Breast self-examination (BSE) is one of the preventive and early detection measures for this disease.

Objectives: The present study aimed to determine the level of awareness, attitude, and practice regarding BSE among women.

Methods: The current cross-sectional study was conducted on 128 female employees working at Islamic Azad University, Zanjan Branch, Zanjan, Iran, in 2023. Participants were selected using a convenience sampling method. A researcher-made four-part questionnaire, including demographic information and the assessment of awareness, attitude, and practice regarding BSE was employed to collect data. Data were analyzed using descriptive and inferential statistics in SPSS version 25.

Results: Most of the women participating in the study were married (84.4%) and held a bachelor's degree (50%). The mean (standard deviation [SD]) scores for awareness, attitude, and practice regarding BSE among the female participants were 2.95 (1.23), 2.73 (1.28), and 2.5 (0.92), respectively. Findings revealed that awareness and attitude had a statistically significant and direct correlation with practice regarding BSE among the participants ($p<0.05$). There was no statistically significant difference in awareness and practice regarding BSE among women based on their education level ($p>0.05$).

Conclusion: With increased awareness and a positive attitude toward BSE, women's practice in this regard improves. BSE is a cost-effective and non-invasive method, culminating in early detection and better control of breast cancer. Thus, it is recommended that educational packages be designed to enhance women's awareness, attitude, and practice regarding BSE.

Implications of this paper in nursing and midwifery preventive care:
The continuity and repetition of training at different intervals significantly impact individuals' performance and play a crucial role in improving the quality of care, patient safety, prevention, and early interventions for the timely detection and treatment of breast cancer among women. Breast self-examination (BSE) awareness programs can serve as an appropriate strategy for commencing training among healthcare, nursing, and midwifery students to enhance effective practice to provide accurate education to female employees in the study population.

Introduction

Breast cancer is a significant and serious female health concern [1]. It is the most common malignancy among women worldwide and is considered a growing health problem globally, particularly in developing countries [2]. This disease accounts for 30% of all female cancers and is recognized as the second leading cause of death in developed countries and the third leading cause of death in less developed countries. Annually, over one million new cases of breast cancer are diagnosed worldwide. In 2020, 3.2 million women were diagnosed with breast cancer, and 685,000 died worldwide. Currently, the number of years of life lived with disability and also the number of years of life lost due to breast cancer are higher worldwide than for any other type of cancer [3]. The incidence of breast cancer among Iranian women has been reported to be 23.6% [4]. This cancer has the highest prevalence among Iranian women, accounting for 21.4% of all cancers, with the peak age of onset estimated to be between 35 and 40 years [5]. According to a 2020 World Health Organization

(WHO) report, there were 16,967 new cases of breast cancer in Iran, of which 4,810 resulted in death [6].

Various factors contribute to the development of breast cancer, including increasing age, early menarche, late menopause, first pregnancy after 31 years of age, postmenopausal obesity, history of breast cancer among first-degree family members, smoking, alcohol use, chest X-ray, postmenopausal hormone therapy, use of oral contraceptives, insufficient physical activity, lack of breastfeeding, dense breast tissue, and a history of other cancers, particularly ovarian and endometrial cancers [7].

Some researchers and experts argue that the increasing workload of women's responsibilities, including both household chores and working outside the home, coupled with the lack of equitable division of traditional gender roles, culminates in their physical and mental health deterioration. Working outside the home, spousal role, motherhood role, and household chores have led women to experience both work-related and home-related fatigue and anxiety. Undoubtedly, role conflicts, particularly work-related pressures, can jeopardize the physical and mental health of working women [8].

The high mortality rate among women due to breast cancer is attributed to late-stage diagnosis. The success of developed countries in controlling mortality and the consequences of breast cancer is due to early detection [9]. Despite advancements in surgical, chemotherapy, and radiotherapy techniques, the mortality rate due to breast cancer has remained stagnant for at least 31 years, the primary reason for which is patient presentation in the late stages of the disease. It is well-established that the prognosis of breast cancer improvement is directly correlated with the stage at which the disease is diagnosed [10].

Early detection and treatment of breast cancer can lead to better outcomes; for this reason, the WHO recommends regular screening [7]. BSE has been shown to be one of the best methods for screening breast cancer. Women who perform BSE monthly can detect up to 75% of malignant masses themselves [11]. Although more than 60% of all breast masses are detected by patients themselves, the rate of BSE in Iran has been reported to be 3% to 17%. Most Iranian women are not sufficiently aware of the warning signs of breast cancer. Research has shown that 70% of women with breast cancer in Iran die prematurely due to a lack of awareness and delayed diagnosis [6]. Promoting breast cancer screening behaviors can mitigate mortality rates through early detection. BSE is a simple, safe, cost-effective, and non-invasive method for early detection of breast cancer; however, the prevalence of BSE in Iran is unsatisfactory [12]. According to available evidence, BSE is influenced by factors such as women's awareness, attitude, demographic variables, and sociocultural context [13]. Given the importance of BSE in the early detection, prognosis, and successful treatment of breast cancer as a health priority in the community, the present research aimed to determine the level of awareness, attitude, and practice regarding BSE among female employees of Islamic Azad University, Zanjan Branch.

Methods

This cross-sectional study was conducted on female employees at Islamic Azad University, Zanjan Branch in Iran. The study population consisted of all female employees working at Islamic Azad University, Zanjan Branch. A total of 220 women were employed at this university. The sample size was calculated to be 136 individuals based on Morgan's table. Sampling was conducted using a convenience sampling method between August 11, 2023, and September 1, 2023. Working in units affiliated with the university was considered the inclusion criterion. Moreover, incomplete questionnaires were excluded from the data analysis.

The data collection tool was a researcher-made four-part questionnaire comprising questions on demographic information and the assessment of awareness, attitude, and practice regarding BSE. This questionnaire was developed by the researcher, and the data collection form was designed after reviewing numerous books and articles based on the research objectives. In order to assess the face and content validity, the questionnaire was presented to 10 faculty members of the Department of Nursing and Midwifery with a master's degree in internal and surgical major and a doctoral degree in nursing and midwifery, and their suggestions for revisions were incorporated. Based on their feedback and suggestions, the final version of the questionnaire

was prepared. The reliability of the questionnaire was assessed using the internal consistency method, and Cronbach's alpha coefficient was calculated, which resulted in a value of 0.87.

The first part of this questionnaire consisted of questions related to demographic characteristics, obstetric factors, and family history, including a history of breast cancer and performing BSE. The second part consisted of awareness-related questions (5 questions), the third part included attitude-related questions (6 questions), and the fourth part comprised practice-related questions (3 questions). The questions were rated on a 4-point Likert scale ranging from 1 to 4. Those who selected option 4 demonstrated high levels of awareness, attitude, and practice, while those who chose option 1 exhibited low levels of these constructs. The range of scores for awareness was 5-20, for attitude was 20-24, and for practice was 3-12. Higher scores indicated higher levels of awareness, attitude, and practice.

Data were collected individually from students at Islamic Azad University, Zanjan Branch, using a questionnaire.

Following completing the questionnaires, the data were entered into SPSS version 25. Descriptive statistics, including mean, standard deviation [SD], frequency, and percentage, and inferential statistics, including Pearson's correlation coefficient and analysis of variance (ANOVA), were employed for data analysis. The level of significance was set at $p < 0.05$. Additionally, the Kolmogorov-Smirnov test was employed to assess the normality of distribution in quantitative variables. Since the significance level for all variables was greater than the test level (0.05), the data distribution was considered normal.

Results

The participation rate of women in this study was 94.11% (128 individuals). Eight questionnaires were excluded from the analysis due to incomplete data. Participants aged between 38 and 56 years. Most women participating in the study were married (84.4%), had a bachelor's degree (50%), and were employed in administrative departments of the university (93.8%). Regarding a history of breast cancer, 8.6% reported a positive history, and 91.4% reported a negative history. In terms of performing BSE, 28.9% responded positively, and 71.1% responded negatively (Table 1).

The mean (SD) scores for awareness, attitude, and practice regarding BSE among female participants in this study were 2.95 (1.23), 2.73 (1.28), and 2.5 (0.92), respectively.

Table 1: Demographic characteristics of female employees working at Islamic Azad University, Zanjan Branch (N=128)

Variable		N*	%
Education level	Associate	2	1.6
	Bachelor	64	50.0
	Master	46	35.9
	Higher	16	12.5
Occupation	Clinical	2	1.6
	Administrative	120	93.8
	Service	6	4.7
Marital status	Single	20	15.6
	Married	108	84.4
History of breast cancer	Yes	11	8.6
	No	117	91.4
Performing BSE	Yes	37	28.9
	No	91	71.1

N: Number

According to the results of Pearson's correlation coefficient analysis, awareness and attitude variables had significant and direct correlations with practice among female employees at Islamic Azad University, Zanjan Branch, regarding BSE ($p<0.001$) (Table 2).

Table 2: The correlation of practice with awareness and attitude toward breast self-examination among female participants

	Awareness		Attitude	
	Correlation coefficient	p	Correlation coefficient	p
Practice	0.523	< 0.001	0.336	< 0.001

Results indicated that education level had no statistically significant correlation with awareness, attitude, and practice regarding BSE (p>0.05) (Table 3).

Table 3: Awareness, attitude, and practice regarding breast self-examination among participants according to the education level

Variable		Awareness	Attitude	Practice
		Mean (SD)	Mean (SD)	Mean (SD)
Education level	Associate	2.2 (0.99)	2.11 (1.19)	2.41 (0.96)
	Bachelor	2.5 (1.36)	2.33 (1.37)	2.50 (0.83)
	Master	2.6 (1.48)	2.72 (1.38)	2.53 (0.88)
	Higher	3.06(1.23)	2.75(1.28)	2.69 (0.92)
Test*		F=1.302 df=63 p=0.254	F=2.479 df=63 p=0.07	F=1.378 df=63 p=0.312

SD: Standard deviation

Discussion

The present study aimed to determine the level of awareness, attitude, and practice regarding BSE among female employees at Islamic Azad University, Zanjan Branch. The findings revealed no significant statistical difference in awareness, attitude, and practice regarding BSE among the female participants based on their education level. The results of this study demonstrated a positive direct significant correlation between the attitude toward health and practice variables among female students at this university. However, no correlation was found among the participants' education level, awareness, and practice regarding BSE. The findings indicated that enhancing the female employees' awareness and attitude regarding BSE would improve their practice in this regard.

In their study to investigate the level of awareness, attitude, and skills of healthcare providers in the city of Shahrood regarding BSE, Alaeinejad et al. (2007) reported that most healthcare providers had a positive attitude toward BSE. A small percentage of the participants were neutral about the attitude-related questions. There was a significant relationship between the participant's marital status and attitude. Furthermore, the healthcare providers' awareness and attitude were shown to be significantly correlated with their skills [1]. In the present research, there was a significant relationship between attitude and practice regarding BSE among women, which is consistent with the research conducted in Shahrood.

In addition, Rezabeigi et al.'s study (2016) entitled "Breast self-examination and its effective factors based on the theory of planned behavior among women in Kerman, Iran" found that women with university education level, employed women, and women whose husbands had higher education levels were more likely to perform BSE. In the current research, no correlation was observed between participants' education level and practice regarding BSE, which is contrary to the research conducted in Kerman [14].

In the present research, most women held a bachelor's degree or higher. However, our findings demonstrated no significant correlation between women's education level and awareness. This finding contradicts the results of Miri et al.'s study (2020), which demonstrated that women's education level and awareness were significantly correlated with the stages of change. Their study indicated that as education level and awareness

increased, a greater number of participants were in the action and maintenance stages, meaning a greater number performed BSE [12]. Conversely, our study did not support this finding.

The results of Pirasteh's study investigating the stages of change and predicting the self-efficacy construct in BSE behavior among women referring to healthcare centers in Tehran, the results showed that with increasing the education level, the mean score of self-efficacy also increased among the participating women, which is inconsistent with the findings of the present research [15].

The results of Alavije et al.'s study (2022) entitled "Inequality in breast cancer screening test utilization among women in Kermanshah" revealed that by increasing the education level, the odds of performing BSE also increased, accounting for 5.5 times higher among individuals with university education level compared to illiterate individuals. Higher education levels increase the utilization of screening services, indicating greater efficiency in health production. An educated woman may better understand the benefits of breast cancer screening, be more attuned to diagnose early warning signs of cancer, and seek medical attention sooner if symptoms arise [4]. In the present research, no significant correlation was found between education level and the practice of employed women.

In a study entitled "Awareness and practice regarding breast self-examination among female nurses in a federal teaching hospital in Nigeria," using a simple random sampling method over an eight-week period, Gabriel et al. (2016) found that more than half of the nurses had a good awareness of the warning signs of breast cancer, while only 18% of the participants demonstrated adequate practice in BSE [16].

In a study entitled "The impact of a breast self-examination program on women's awareness for early detection of breast cancer" conducted on women referring to an outpatient clinic at the maternity ward at the hospital affiliated with Minia University, Abd-Elaziz (2021) demonstrated that awareness could impact practice regarding BSE because enhanced awareness was associated with greater self-confidence, in turn culminating in women's more accurate practice regarding BSE. Women's levels of awareness and attitude increased after the implementation of the BSE program. Furthermore, women's education level positively affected their awareness both before and after the program, as well as their attitude and practice merely before the program. Thus, a comprehensive BSE program can contribute to the early detection of breast cancer by increasing women's awareness, attitude, and practice regarding utilizing such a program [17].

Ershad Sarabi et al.'s study (2021) conducted to determine the impact of mobile phone-based education on how to perform BSE among female health workers in the city of Kahnuj, Iran, indicated that a higher education level among health workers was correlated with greater awareness and practice regarding BSE. Additionally, they reported that access to more comprehensive, up-to-date, and readily available information sources was linked to higher levels of awareness. In this study, a significant difference was observed between awareness and practice scores on BSE before and after the educational intervention. Moreover, the mean scores before and after the intervention exhibited a significant difference. Therefore, education has a positive impact on awareness and practice regarding BSE. However, awareness alone does not guarantee breast cancer-related preventive behaviors, and it is essential to empower women concerning each screening behavior [5]. Given the lack of a significant correlation between individuals' education level and practice, this finding is inconsistent with the results of the present study.

One limitation of this study is that the results may not be generalizable to other populations. On the other hand, the examination of the correlation of awareness, attitude, and education level with BSE among female university employees as an educated population was the strength of this research, as the data analysis results highlight the importance of education and preventive care in this population.

Conclusion

In the present research, a significant correlation was found between the practice and attitude toward health among female employees working at Islamic Azad University, Zanjan Branch. However, most participants had lower education and awareness levels compared to practice regarding BSE. Since BSE is a cost-effective and

non-invasive method for early detection of breast cancer, it is evident that a higher education and awareness level among women from different social strata regarding this issue would lead to decreased mortality rates and associated psychological and physical harm among women.
Given the increasing prevalence of breast cancer in Iran and the lack of a significant correlation between awareness and education levels of female university employees, there is a critical need to focus on health promotion interventions and pay attention to planning by health centers and nursing schools located in universities and institutions in this field. Furthermore, implementing educational programs and related interventions can enhance women's practice and self-efficacy in accurately performing BSE, significantly reducing the incidence of this disease.

Ethical Consideration

This article is based on a research project approved by the Ethics Committee of Islamic Azad University, Zanjan Branch (IR.IAU.Z.REC.1402.115). Written informed consent was obtained from all participants.

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Conflict of interest

No Conflict of Interest.

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Authors' contributions

Seyedeh Susan Raoufi Kelachayeh: Initial research design, supervision of data collection; Hamed Rezaghpour: Data analysis and collaboration in research guidance and implementation;
Roghayyeh Ahmadi and Mobina Mohammadzadeh: Drafting and implementation of the research.
The final version of the article was approved by all authors.

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