Original Article

Breast Cancer Awareness and Lifestyle Related Risk Factors in Women Working in a Factory

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The work is carried out at at a food factory in Giresun province of Turkey (postal code: 28000).

Abstract
Objective: This study aims to determine the breast cancer awareness and risk factors related to lifestyle among women working at a food factory.
Methods: Data is collected with a questionnaire including questions on socio-demographic characteristics and breast cancer, and Champion's health belief model scale, in 2017. Height and weight measurements of the workers are also obtained.
Results: Breast cancer awareness of the workers is found to be at the medium level. The ratio of the workers having breast cancer history in their families is found to be 7.3%, the obesity ratio is 63.8%, and the ratio of the workers practicing regular physical exercise is 10.2%.
Conclusion: It is recommended that more studies should be carried out on breast cancer awareness and healthy lifestyle behaviors in workplaces and these topics should be integrated into the training programs.

Keywords: Breast cancer, women's health, work health

Introduction

Breast cancer is the second most common cancer type worldwide and is ranked as the fifth among the deaths due to cancer. Breast cancer is also the most common cancer type among women and the most frequent cause of death for women in underdeveloped regions of the world.

Breast cancer is the most frequently seen cancer type for women in Turkey as revealed with the observation that one fourth of the cancer types among women is breast cancer. In Turkey, 44.5% of the women who are diagnosed with breast cancer are reported to be between the ages of 50 and 69, while 40.4% of them are reported to be between the ages of 25 and 49 (Turkish Ministry of Health, 2017). Although breast cancer is a commonly observed, it is a cancer type that can be prevented with primary and secondary prevention measures. Additionally, the availability of simple and affordable screening and diagnosis methods for this cancer type makes this disease important from the perspective of public health. For early diagnosis of breast cancer, American Cancer Society recommends mammography screening between the ages of 40 and 45, and also recommends regular yearly mammography screenings between the ages of 45 and 54.

Aging, nulliparity, obesity, use of oral contraceptives, breast cancer history in the family, sedentary lifestyle, and environmental factors are among the risk factors of breast cancer (Michell, 2010; Vainio et al., 2002, NCCN Clinical Practice Guidelines in Oncology, 2009). While some of these factors like age and breast cancer history in the family cannot be changed; lifestyle habits like nutritional practices, physical exercise, and the use of oral contraceptives depend on the individuals.

Having children before the age of 35 and having more children are found to be associated with low risk of breast cancer (Lambertini et al., 2016). The risk of breast cancer after menopause is 1.5 times higher in

overweight women compared to thin women and it is twice higher in obese women (La Vecchia et al, 2012). The risk of having this disease is higher for individuals who have breast cancer in family history, especially in first-degree relatives (such as parents, children, and siblings) (Collaborative Group on Hormonal Factors in Breast Cancer, 2001).

Working life and factories are important opportunities to raise the awareness of women on breast cancer risk factors which can be changed with health behaviors. Pender et al. (2002) defines health behaviors as the set of behaviors which individuals believe in and practice in order to protect, improve and maintain good health.

Supporting health in workplaces is important in general in order to improve the health states of workers. Supporting health in workplaces contributes to the implementation of the necessary facilities required for workers' healthy living and working. Balanced diet, adequate sleep, regular physical exercise, stress management are some of these facilities. These and similar healthy behaviors help decrease diseases and early deaths, and control health costs (Kirsten et al., 2012, Turkish Ministry of Health, 2018). Factories constitute important opportunities for informing women about breast cancer.

In this study, we aim to assess the awareness of women working in factories regarding breast cancer, together with some risk factors.

Methods

This cross-sectional study is applied at a hazelnut factory in Giresun province of Turkey between February 1, 2017 and April 28, 2017. 220 female workers who were working at the factory between the specified dates constitute the universe of the study. Since 32 workers did not agree to participate in the study and 11 workers were on leave, the study is applied to a total 177 people. Data is collected from the participants using a questionnaire form which have socio-demographic questions and questions related to breast cancer, and Champion's health belief model scale (Champion, 1993), and also height-weight and waist-to-hip ratio measurements are performed. After obtaining the necessary permissions, the researchers visited the workers at predetermined hours. This study complies with all ethical rules and the principles of Helsinki declaration. After the researchers provided information to the workers regarding the study and obtained informed consent, the questionnaire form of 28 questions and Champion's health belief model scale were distributed to the workers who agreed to participate. The validity and reliability studies of this scale for Turkish were conducted by Karayurt and Dramal (2007). The forms are filled under the supervision of the researchers. Next, height, weight, waist and hip circumference measurements of the participants are performed at the factory infirmary. A standard platform scale is used during the measurements and the measured weights are decreased by 500 gr. Body Mass Index (BMI) calculations of the women are also performed. During these calculations, BMI classifications of World Health Organization (WHO) are used. According to this classification, people with BMI values less than 18.50 are considered as "underweight", those with values between 18.50 and 24.99 are considered as "normal", those with values between 25.00 and 29.99 are called "pre-obese", and finally, people with BMI values equal to or above 30.00 are called "obese".

During data evaluation; frequency, percentage, Chi-square test and t-test in independent samples are used. $P<0.05$ is considered as significant.

Findings

The distribution of the women with respect to socio-demographic characteristics is provided in Table 1. According to this distribution, 37.3% of the workers are between the ages of 20 and 29 while 27.7% of them are between the ages of 40 and 49. 41.8% of them have education levels at secondary school or lower. 76.8% of the women live in towns and 74.0% of them are married.

In Table 2, some risk factors related to breast cancer in women and their information levels of the women are given.20.9% of the participants are smokers. 87.0% of the participants do not practice regular physical exercise.39.0% of them are overweight and 24.8% of them are obese.7.3% of them have breast cancer in their families. 62.1% of them stated that they were informed about breast

cancer and 14.0% of them stated that they had mammograms.

In Table 3, Health Belief Model Scale (HBMS) subscale average scores of the women are provided. According to this, average of the susceptibility perception scores is 7.1±3.0, that of seriousness/importance perception is 19.1±7.3, that of benefits perception is 14.4±5.2, that of barriers perception is 24.6±8.9, that of confidence/self-efficacy is 30.1±8.9, and the average for health motivation scores is 23.2±7.8.

Considering the HBMS subscale scores of the workers who stated that they had breast examination performed by health personnel within the last one year, averages of the seriousness/importance and confidence/self-efficacy scores are significantly higher ($P<0.05$).The seriousness/importance perception points of the women who stated that they has breast problems previously, is found to be significantly higher than that of the ones who did not experience breast problems ($P<0.05$). The barriers scores of the women who stated that they were informed about breast cancer are significantly higher ($P<0.05$). No significant association is found between having mammograms and HBMS subscale scores ($P>0.05$).

Table 1: Distribution of the Women with respect to the Socio-Demographic Characteristics

Characteristics	N	%
Age		
20-29	66	37.3
30-39	55	31.1
40-49	49	27.7
50-59	3	1.7
Education level		
Primary school	36	20.3
Secondary school	38	21.5
High school	84	47.5
University	19	10.7
Place of residence		
City	25	14.1
Town	136	76.8
Village	12	6.8
Marital status		
Married	131	74.0

Single	42	20.9
Economic status		
Income is less than expense	66	37.3
Income is equal to expense	83	46.9
Income is more than expense	12	6.8

Table 2: The Distribution of Risk Factors and Information States about Breast Cancer

Characteristics	**N**	**%**
Smoking		
Yes	37	20.9
No	136	76.8
Alcohol		
Yes	2	1.1
No	172	97.2
Regular physical exercise		
Yes	18	10.2
No	154	87.0
BMI		
Normal	59	33.3
Overweight	69	39.0
Obese	44	24.8
Waist-to-hip ratio		
≤0.80	106	59.9
≥0.81	65	36.7
Breast cancer case in family		
Yes	13	7.3

No	163	92.1
Pregnancy		
Yes	119	67.2
No	41	23.2
Informed about breast cancer?		
Yes	110	62.1
No	61	34.5
Had mammogram?		
Yes	25	14.1
No	150	84.7

Table 3: Average Scores of the Subscales of Health Belief Model Scale

Subscales	Number of Items in Subscale	Min-max Scores	X±SS
Susceptibility perception	3	3-15	7.1±3.0
Seriousness/importance perception	7	7-35	19.1±7.3
Benefits perception	4	4-20	14.4±5.2
Barriers perception	11	11-55	24.6±8.9
Confidence/self-efficacy perception	10	10-50	30.1±8.9
Health motivation	7	7-35	23.2±7.8

Discussion

Employee health and safety is one of the most important issues in all societies and countries. The topic of work health deals with the maintenance of health, avoiding unnecessary injuries, sharing health related information, obtaining information about health risks, protection of the individuals themselves and others from damages and future problems, promoting the general health and healthy lifestyles of workers in the working environments (Guidotti, 2011). Factories where many women work together are convenient environments to teach them about

the primary and secondary protection measures of breast cancer within the course of occupational health services.

In this study, 29.4% of the women are between the ages of 40 and 59, and 31.1% of them are between the ages of 30 and 39. 78.5% of the women who are between the ages of 40 and 59 have indicated that they do not have mammograms. Again, 61.3% of the women within the same age group did not have a clinical breast examination. In the study, the ratio of women who have mammograms and have clinical breast examination is at a low level. According to WHO, the most effective methods in the early diagnosis of breast cancer are having mammograms and clinical breast examinations. Although there is not enough evidence on whether breast self-examination is effective in the early diagnosis of breast cancer or not, it is pointed out that it can be useful from the perspective of women's taking responsibility of their own health.

A 20.9% of the participant women are smokers. It denotes that more than one fifth of the women are smokers and it is a high ratio. Not smoking, preventing obesity, increasing physical exercise, and refraining from some infections are among the primary ways of protection from cancer (Alberts and Hess, 2008). Smoking alone is responsible for more than 20% of the yearly cancer deaths worldwide, and additionally, it increases the risks of the formation of cancers including especially lung cancer, and larynx, bladder, kidney, breast cancers (Mackay, 2006).

In a study by Ko et al. (2018), it is pointed out that for women who have BRCA1 and BRCA2 mutations, tobacco smoking is associated with a moderate increase in breast and ovarian cancers.

A 87.0% of the participating women have stated that they do not take regular physical exercise. This ratio for regular physical exercise is quite low. In several studies, it is indicated that regular physical exercise decreases the risk of breast cancer. In the study by Bernstein et al., it is pointed out that lifelong physical exercise is a changeable lifestyle behavior which decreases breast cancer risk (Bernstein et al., 1994). In the study by Nunez et al. (2017), it is stated that low and moderate physical exercise was associated with low postmenopausal risk. In Kruk's study (2007), it is stated that lifelong physical activity is associated with a lower risk of breast cancer.

The BMI values of 63.8% of the participating women are found to be above normal. 39.0% of the participants are overweight and 23.1% of them are obese. Hence, the obesity ratio of the women participating in our study is high. Also, for 36.7% of the participating women in the study, waist-to-hip ratio is found to be greater than 0.81. According to WHO, having waist-to-hip ratio above 0.85 constitutes a risk factor for obesity (WHO, 2008).

By controlling specific and interchangeable breast cancer risk factors and preventing non-communicable diseases in an effective and integrated manner; healthy nutrition and physical activity can be supported to control alcohol intake and weight control, thereby breast cancer cases can be decreased in the long run. A 7.3% of the women who participate in the study have stated that they have breast cancer occurrence in their families. This finding of our study is similar to related findings in the literature. In the study by Tumer and Baybek (2010), the percentage of the people who have stated that they have breast cancer cases in their families is 12.0%. Having breast cancer history in the family is one of the unchangeable risk factors of breast cancer.

A breast cancer occurrence among one of the first-degree relatives such as mother and sister doubles the risk of having breast cancer for a woman. If two first degree relatives have breast cancer, this triples the risk of breast cancer for a woman**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.**. It is also found in the study by Liu et al. (2017) that having breast cancer history in the family doubles the risk of breast cancer. In the study by Absetz et al. (2000) which investigates the perception of genetics as a risk factor for breast cancer, for those women who have breast cancer seen in their families or friends and for those who have not, genetics is found to be the most widely known risk factor.

For the participating women in the study, their becoming conscious about the observation that having breast cancer cases in the family increases the disease risk and having breast cancer controls performed are important for

their prospective contribution to early diagnosis.

While 62.1% of the workers have stated that they received information about breast cancer, 34.5% of them did not received information about breast cancer. Therefore, circa one third of the workers were not informed about this topic. Lack of information about breast cancer and its risk factors, and insufficiency of the received information lead to increases in anxiety (Vogel, 1999).

In this study where the beliefs of the women regarding breast cancer are assessed using the Health Belief Model Scale (HBMS), the obtained subscale scores range from 7.1±3.0to 30.1±8.9. It can be concluded that the HBMS subscale scores of the women are at a medium level. In a study conducted on university students by Kılıç et al. (2009), among the HBMS subscale scores; susceptibility, seriousness/importance, health motivation, benefits, confidence/self-efficacy perception scores are similar to the scores obtained in our study, yet, barriers perception score is found to be lower than this subscale score in our current study. The difference in barriers perception can be attributed to the fact that the study by Kılıç et al. (2009) is performed on university students, hence on a younger age group compared to the current study.

In a study by Guney (2009) which was performed on female factory workers, among the HBMS subscale scores; susceptibility, seriousness/importance, health motivation, benefits, confidence/self-efficacy perception scores are similar to the findings in our study, yet, barriers perception score is found to be lower than the corresponding score in our current study.

According to the results of the current study, for those workers who indicated that they had breast examination within the last year, the averages of seriousness/importance and confidence/self-efficacy scores are considerably higher ($P<0.05$).Awareness of the importance and seriousness of the disease and anxiety caused by the disease are effective on protective health behaviors. Confidence and self-efficacy indicate the self-sufficiency of the individuals regarding their behaviors (Nahcivan and Seçginli, 2003).

The seriousness/importance perception scores of the women, who indicated that they had breast problems previously, are determined to be significantly higher than the corresponding scores of the women who did not have. ($P<0.05$). The seriousness/importance perception score of a disease or health problem is interpreted as the anxiety that is brought by this threatening situation and how the individual perceives the harmful consequences of this situation (Champion, 1993). According to American Cancer Society, some benign formations in breasts can constitute risk for breast cancer**Σφάλμα! Δεν έχει οριστεί σελιδοδείκτης.**.

The barriers scores of the women who stated that they were informed about breast cancer are significantly high ($P<0.05$). Barriers perception represents the negative aspects perceived during the health protection behaviors (Champion, 1993). In the study by Guney (2009), the women who were informed about breast cancer are found to be taking 6.5 times more mammograms compared to the ones who were not informed.

Conclusion: In this study, it is found that smoking and obesity rates are high among the female workers and the ratio of taking physical exercise is low. The rates of breast cancer history in families are found to be similar to the previous findings in the literature. 67.2% of the women experienced pregnancies. 34.5% of them stated that they were not informed about breast cancer. Breast cancer awareness subscale scores are at the medium level. It is recommended that the number of studies performed on breast cancer at factories should be increased and trainings related to breast cancer, its awareness, and screening methods should be integrated into the workplaces.

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