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RESEARCH ARTICLE

ASSESSING KNOWLEDGE OF PRIMARY HEALTHCARE PHYSICIANS IN MAKKAH CITY ABOUT THE MODIFIABLE RISK FACTORS OF BREAST CANCER

*** Waad Ahmed AlMajnoni[1], Khalid Abdullah Almasaodi[2] and [3]Saud Hasan Surbaya**

[1]Family Medicine resident, Public Health Administration, Makkah, Kingdom of Saudi Arabia
[2]Public Health Administration, Makkah Healthcare Cluster, Kingdom of Saudi Arabia
[3]Hairman of Training & Education Department, Public Health Administration, Makkah Healthcare Cluster, Kingdom of Saudi Arabia

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**Corresponding author:*
Guy C. WOKOU

ABSTRACT

Background: Breast cancer (BC) has many risk factors that lead to its diagnosis in premenopause and more common in postmenopause; most of these factors are modifiable; including anthropometric factors and reproductive factors. **Objectives:** To assess knowledge and its associated factors among physicians in primary healthcare settings in Makkah city about the modifiable risk factors of breast cancer. **Subjects and methods:** A cross-sectional study was conducted in Makkah Al-Mukarmah city, western area of Saudi Arabia among a sample of primary healthcare physicians working at the PHC centers, belonging to the internal PHC sectors inside the city. A self-administered questionnaire was utilized in the present study. It includes two main sections**; b**ackground information of the physicians and **a**ssessing the knowledge of the participants regarding modifiable risk factors for breast cancer (Contraceptive history, obesity/physical activity, smoking and diet). **Results:** A total of 150 primary healthcare physicians have participated in the study. More than half of them (58.7%) aged between 20 and 30 years, and 56% were females. The knowledge score ranged between 16 and 30 with a mean±SD of 23.71±3.16. Almost two-thirds of the physicians (68%) had high level of knowledge. Among studied sociodemographic factors, only the degree of job of the participants was significantly associated with knowledge level about BC as the highest score was observed among residents (25.46±1.98) and the lowest among general practitioners (22.27±3.39), p<0.001. **Conclusion:** most of primary healthcare physicians in Makkah had good level of knowledge regarding breast cancer modifiable risk factors, resident physicians. Their main source of information was the Internet, followed by books and guidelines.

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INTRODUCTION

Breast cancer (BC) is the commonest hormonal-related type of cancer among women in developed and developing countries; worldwide it represents 23% of all cancers in women.[1,2] There are worldwide variations in the incidence rate of BC mostly due to variation between countries in the availability of early detection and therapy facilities, lifestyle, population structure, life expectancy, environment, prevalence of risk factors, and health insurance status.[3] BC has accounted for 28.7% of all newly diagnosed cancer in Saudi women that making it the most common cancer type in this population.[4]There is an increase in the incidence of breast cancer in Saudi Arabia in last years, particularly among younger women compared to those in western countries.[5] Globally, BC represents more than 1.6% of all female mortality.[6] BC has many risk factors that lead to its diagnosis in premenopause and more common in postmenopause; most of these factors are modifiable; including anthropometric factors and reproductive factors.[7]

The anthropometric factors include increased hip circumference, waist circumference, body mass index (BMI), and waist to hip ratio (WHR) depending on the menopausal status of women. [8]Reproductive risk factors include, early age at menarche, late age of menopause, late age at first birth, low parity, usage of hormonal replacement therapy, prolonged use of hormonal contraceptives, hysterectomy and bilateral oophorectomy.[9] Other risk factors were identified including female sex, older age, family history of BC, genetic predisposition, fatty diet, obesity, alcohol drinking and smoking; some of these factors are modifiable.[10,11]

Epidemiologic studies have indicated that sedentary lifestyle play a significant role as risk factors for breast cancer while practice of breastfeeding is a protective factor. [12,13] Scientists classified the factors that affect women` susceptibility for developing breast cancer into two groups: modifiable risk factors and non-modifiable risk factors. Modifiable risk factors are related to women` lifestyle that that can be changed such as physical activity, smoking, alcohol consumption, obesity and weight gain.[14] Healthcare workers especially female physicians play an essential role in educating women and offering accurate information through properly designed educational programs in the clinical setting, as well as, through community campaigns.[15] Therefore, they must be knowledgeable about the possible risk factors of breast cancer; particularly the modifiable ones. Therefore, the present study was carried out to assess knowledge and its associated factors among physicians in primary healthcare settings in Makkah city about the modifiable risk factors of breast cancer.

SUBJECTS AND METHODS

A cross sectional study was done among primary healthcare (PHC) physicians working at the PHC centers (n=43), belonging to the internal PHC sectors inside Makkah city (Aladel, Alzaher and alkaakeiya sectors). Their total number is 208 physicians. Makkah Al-Mukaramah is the capital and administrative headquarters of the Makkah Region in the western area of Saudi Arabia. Makkah's 2020 population is now estimated at 1,967,094, roughly 2 millions. In regards to health care facilities, there are eight hospitals and 79 health centers. Primary health care in Makkah have been established and provided more than 30 years ago and nowadays there are 79 centers distributed across the city and its nearby governorate; 43 centers are internal centers these centers are divided into 7 main sectors. The minimum sample size was estimated using Roasoft online sample size calculator as136 physicians, based on 95% confidence level, 5% margin of errors and 50% prevalence of knowledge as there was no previous specific figure among physicians. This sample will be increased by 10% for avoiding non-response error to become around 150 physicians.

Simple sampling random technique was used to select two PHC centers from each sector; thus a total of 14 PHC centers were selected. All physicians working at these centers were invited to participate in the study by filling in the study questionnaire. A self-administered questionnaire was utilized in the present study. It includes two main sections

- Background information of the physicians (age, gender, marital status, nationality, job title, area of residence, years of practice and highest qualification).
- Assessing the knowledge of the participants regarding modifiable risk factors for breast cancer. Four factors were chosen (Contraceptive history, obesity/physical activity, smoking and diet). The questionnaire was created by the researcher with the help of the supervisor and was subjected to validity before application, by three consultants in Family Medicine, Oncology and Community Medicine. Test-retest reliability of the tool was adopted on 15 physicians (almost 10%). The resultant questionnaire was valid and reliable.

The researcher fulfilled all the required official approvals, particularly the approval of the regional Research and Ethics committee and those of the primary healthcare centers directors. Before giving questionnaires to physicians, informed consent was asked from all of the chosen subjects then, all of them had the right not to participate in the study or to withdraw from the study prior to completion. The researcher explained the purpose of the study to all respondents. Confidentiality and privacy were guaranteed for all participants. The data were collected and verified by hand then coded before computerized data entry. The statistical Package for Social Sciences (SPSS) software version 26.0 was used for data entry and analysis. Descriptive statistics (e.g. number, percentage, mean, range, standard deviation "SD") and analytic statistics using unpaired t-test and one way analysis of variance (ANOVA) tests were applied and p-values <0.05 was considered as statistically significant.

RESULTS

A total of 150 primary healthcare physicians have participated in the study. The sociodemographic characteristics of them are presented in Table 1. More than half of the participants (58.7%) aged between 20 and 30 years, and females (56%). Most of them (70%) were married, Saudi nationals (87%) and reside in Makkah (90.7%). Regarding job title, 42% were general practitioners and 23.3% were residents.

Table 1. Sociodemographic characteristics of the participants

	N	%
Age		
20 - 30	88	58.7
31 - 45	51	34.0
Above 45	11	7.3
Gender		
Male	66	44.0
Female	84	56.0
Marital status		
Single	32	21.3
Married	105	70.0
Divorced	8	5.3
Widowed	5	3.3
Nationality		
Saudi	127	84.7
Non Saudi	23	15.3
Area of residence		
Makkah	136	90.7
Others	14	9.3
Degree of job		
Resident	35	23.3
Specialist	34	22.7
Consultant	18	12.0
General practitioner	63	42.0
Duration of service		
1 - 5 years	90	60.0
5 - 10 years	52	34.7
More than 10 y	8	5.3

The working experience of 60% of them ranged between one and five years. It has been observed that 58.7% of the physicians have read about breast cancer last time since more than 6 months. The main source of reading was the internet (83.3%), followed by books (10.7%) and guidelines (6%). Figure 1 represents the distribution of the knowledge score of PHC physicians about breast cancer; the score ranged between 16 and 30 with a mean ±SD of 23.71±3.16. Almost two-thirds of them (68%) had high level of knowledge as shown in Figure 2.

Table 2. Factors associated with level of knowledge of primary healthcare physicians in Makkah, Saudi Arabia about breast cancer

		N	Knowledge score		
			Mean	SD	p-value
Age	20 - 30	88	23.58	3.27	0.823**
	31 - 45	51	23.88	3.02	
	above 45	11	24.00	3.07	
Gender	Male	66	23.86	3.13	0.607*
	Female	84	23.59	3.19	
Marital status	Single	32	24.03	3.03	0.241**
	Married	105	23.43	3.23	
	Divorced	8	25.13	2.80	
	Widowed	5	25.40	2.07	
Nationality	Saudi	127	23.78	3.05	0.548*
	Non Saudi	23	23.35	3.75	
Area of residence	Makkah	136	23.82	3.12	0.184*
	others	14	22.64	3.48	
Degree of job	Resident	35	25.46	1.975	<0.001**
	specialist	34	24.06	2.62	
	consultant	18	24.73	3.02	
	general practitioner	63	22.28	3.39	
Duration of service	1 - 5 years	90	23.72	3.03	0.790**
	5 - 10 years	52	23.83	3.34	
	more than 10 years	8	23.00	3.625	
Type of sources you read	Books	16	24.00	3.10	0.582**
	Internet	125	23.61	3.11	
	guidelines	9	24.67	4.06	

*T-test**One-way analysis of variance (ANOVA) test

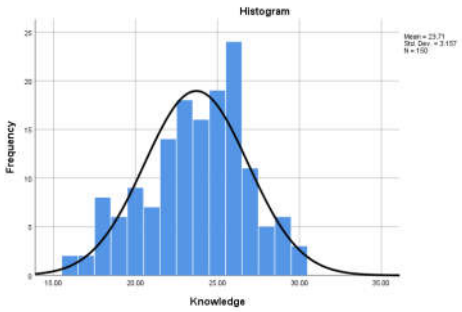

Figure 1. Distribution of the breast cancer knowledge score among the participants

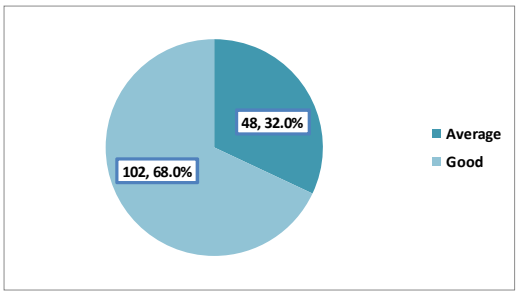

Figure 2. Level of knowledge about breast cancer among the participants

DISCUSSION

Breast cancer in the Kingdom of Saudi Arabia ranked first among females and represents almost one-fifth of all newly diagnosed female cancers and it is often presents at advanced stages and more frequently in young women in comparison to developed countries. [16, 17] Therefore, exploring the knowledge of primary healthcare physicians regarding BC modifiable risk factors and setting recommendations to improve the situation is mandatory. In the present study, almost two-thirds of the primary healthcare physicians (68%) had high level of knowledge regarding modifiable breast cancer risk factors and none had weak level of knowledge. Different results were observed from various studies. In Nigeria (2020), the median value of the knowledge score among healthcare workers of various levels (physicians, nurses, pharmacists and other healthcare workers) was 31 out of 56, with significant difference between job categories. Despite they are healthcare workers, more than 40% of them believed that keeping money in the bra leads to breast cancer, and 10% believed that spiritual attack is a cause of breast cancer.[18] Also in Nigeria (2009), among a cohort of female healthcare professionals (doctors, nurses and other healthcare professionals), satisfactory level of knowledge about BC risk factors was observed among only female doctors with a mean knowledge score of 74%.[19]
In Morocco (2011), among a cohort of female healthcare workers (physicians and nurses), satisfactory level of knowledge about breast cancer risk factors was only observed among female doctors.[20]

In Reblic of Central Africa (2016), average knowledge of health professionals (medical and paramedical) on breast cancer risk factors was 23.8%. Furthermore, 44.3% agreed that family history is a risk factor. The knowledge level was significantly lower among paramedical than medical staff with regard to risk factors.[21] In India (2017), he highest known risk factor for BC among female nurses was hereditary (95%) while the least known risk factor was nulliparity (67%). They concluded that the nurses overall had good knowledge about the different breast cancer risk factors.[22] In Karachi, Pakistan (2006), good level of knowledge was observed among 35% of the registered female nurses.[23]

In Jordan, positive family history was the most known potential risk factor for BC (86.6%) among registered nurses and midwives while hereditary history and aging were known by 83.9% of them as risk factors for BC while radiation, consumption of contraceptive pills for a long period, smoking and alcohol consuming were known by around two thirds of the participants. On the other hand, a lower percentage (23.2%) knew that the early menarche is a risk factor for breast cancer.[24] In China (2017), 46.7% of care giver women had good awareness (above the median score) regarding BC risk factors; past history of breast cancer, drinking alcohol and having close relative with breast cancer are possible potential risk factors for breast cancer (63.6%, 58.6%, and 55.6%

respectively). However, majority of the study participants were unable to recognize the modifiable risk factors of the disease.[25] Comparison between these studies, including the present one is not practical due to difference in the nature of studies as in this study we included only modifiable BC risk factors whereas in others they included breast cancer as a whole, including risk factors. Also, we included only primary healthcare physicians whereas other studies included healthcare professionals including also nurses and technicians.

In Saudi Arabia, no study has been cited regarding the assessment of knowledge of healthcare workers about BC risk factors. However, in Riyadh, most of the adult females aged between 18 and 45 years (75.8%) had a good knowledge about breast cancer risk factors.[26] In the current study, the degree of job of the primary healthcare physicians was the only significantly associated factor with knowledge level about BC as the highest score was observed among residents and the lowest among general practitioners. In Karachi, Pakistan, significant factors associated with good level of knowledge among female nurses were graduation from private nursing schools, caring for breast cancer patients, receiving breast self examination and history of ever examining a patient's breast.[23] In China, awareness level was significantly associated with entertainment preference and place of residence.[24] The commonest source of information about breast self examination in the present study was the internet, followed by books and guidelines whereas role of continuous medical education was not mentioned in the present study. Moreover, the source of information was not associated with the level of knowledge of the physicians about modifiable breast cancer risk factors. Therefore, continuous medical education in this regards in the form of conferences, lectures and workshops is highly recommended. In a similar recent study carried out in Nigeria, mass media was the commonest reported source of information.[18] As any study, there are some limitations in the current study. Among them, the study participants were primary healthcare physicians in only one city in the Kingdom of Saudi Arabia; therefore, the findings of the study cannot be generalized over the entire population of physicians in the whole Kingdom. The questionnaire used was self-report, which may have led to bias. The cross-sectional nature of the study proves only association and not causality between dependent and independent variables. Despite those limitations, this study can detect the defects in knowledge regarding modifiable BC risk factors among primary healthcare physicians in our region. In conclusion, the results of the present study indicate that most of primary healthcare physicians in Makkah had good level of knowledge regarding breast cancer modifiable risk factors, resident physicians. Their main source of information was the Internet, followed by books and guidelines. In the light of the results of the present study and their discussion, the following are recommended:

- Improving primary healthcare physicians` knowledge regarding BC modifiable risk factors through continuous educational programs to decrease the burden of this alarming disease in our community.
- These educational programs should be targeted at other healthcare providers, in addition to physicians.
- Further researches are recommended to identify all the reasons of inadequate knowledge and to evaluate practice regarding early detection of breast cancer.

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