

## ABSTRACT

**Background:** Breast cancer still a major cause of disability and mortality among women throughout the world. Lack of awareness and early detection programs in developing countries is a main reason for escalating the mortality.

**Objectives:** to assess level of awareness about breast cancer among university female students in Baghdad focusing on knowledge of breast cancer risk factors, warning symptoms and signs and knowledge about the screening method specially breast self-examination.

**Methods:** A cross-sectional study conducted over two months from first of march through April 2015 and included (240) female students in non-medical colleges at Al-Rusafa and Al-Karkh districts who completed a comprehensive self-structured questionnaire covering socio-demographic characteristics and (27) questions covering the knowledge of risk factors; warning symptoms and signs of breast cancer and the breast

self-examination. Participants' responses were analyzed statistically and percent score of knowledge level was calculated.

**Results:** The mean age of students was  $(22.8 \pm 3.4)$  years with range (19-30) years, single (75.8%), and those with no family history of breast cancer (85.42%); the internet was the most common source of students' information (34.7%).

**Conclusion:** The overall percent score of all students' knowledge about risk factors, warning symptoms and signs and breast self-examination was poor (<60%).

**Key words:** knowledge/female/college students/breast cancer.

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## INTRODUCTION

Breast cancer is the most frequent malignancy of women worldwide. It is the leading cause of female cancer related disability and mortality<sup>[1]</sup>

According to the World Health Organization (WHO) each year over 1.4 million women worldwide are diagnosed with breast cancer as it accounts for 23% of all newly diagnosed cancers<sup>[2]</sup>

Breast cancer is the commonest malignancy among women in countries within the Eastern Mediterranean Regions (EMR)<sup>[3]</sup>. Within the EMR, according to WHO mortality estimates, cancer is the fourth ranked cause of death; succeeding cardiovascular diseases, infectious/parasitic diseases and injuries<sup>[2]</sup>

In Iraq, it comprises approximately one third of the registered female cancers. The features that justify increasing efforts for breast cancer control in the EMR include the obvious rise in the incidence rates, the higher frequencies of younger ages and advanced stages at the time of presentation and the likely prevalence of more aggressive tumors resulting in high mortality/incidence ratios<sup>[3]</sup>. These factors lead to low five-year survival rates (10-50%) from breast cancer in many low- and

medium-resource countries (LMC) as compared to more than 85% 5-year survival in high-income countries<sup>[4]</sup>. So early detection in order to improve breast cancer outcome and survival remains the cornerstone of breast cancer control<sup>[5]</sup>

The incidence of breast cancer is increasing in the developing world due to increase life expectancy, increase urbanization and adoption of western lifestyles<sup>[6]</sup>. In United States of America USA, breast cancer is the most commonly diagnosed cancer in women and considered the 2<sup>nd</sup> leading cause after skin cancer and cancer related mortality after lung cancer<sup>[7]</sup>

Although some risk reduction might be achieved with prevention, these strategies cannot eliminate the majority of breast cancers that develop in low- and middle-income countries where breast cancer is diagnosed in very late stages<sup>[6]</sup>. The implementation of early diagnosis programs based on awareness of risk factors, early symptoms and signs and breast-self-examination (BSE) that should be done monthly day 7-10 post cycle from age 20 years

for all life & same day monthly in post-menopausal women both visual & tactile exam to prompt referral to diagnosis and treatment<sup>[8,9]</sup>.

One of the main objectives of the National Program for Early Detection and Down Staging Breast Cancer in Iraq is promoting general public awareness on the risk factors of breast cancer, symptoms and signs of the disease and the available screening tools<sup>[10]</sup>.

Objectives of study: to assess level of awareness about breast cancer among university female students in Baghdad focusing on a knowledge of breast cancer risk factors, warning symptoms and signs and knowledge about the screening method specially breast self-examination.

## METHODS

This is a cross-sectional study, the data-collection period extended from the first of March through April 2015 at four non-medical colleges (2 from Al-Rusafa and 2 from Al-Karkh) namely (University of Mustansiriya / College of Administration and Economics), (The Iraqi University / College of Education for Women), (Mamon University College – Department of History), (Dijlah University College – Department of Law). The sample of this study was chosen from university females (between 20-30 years old) since this is the early reproductive age group that share the age of marriage, menstruation, pregnancy & its related factors. Furthermore, the National Breast Cancer Research Program starts at this age<sup>[10]</sup>.

The study sample included 240 college female students who accepted to participate in the study after clarifying the purpose behind the study, assuring high confidentiality and willing participants gave verbal consent and they were handed a comprehensive questionnaire to be filled and returned back to the investigator inside the lecture hall,

Female college students with ages 19 years and older from non-medical college specialty regardless of their marital status and also not working in the medical field and who were willing to participate in the study were included in the study,

A self-administered questionnaire was

designed from heavy literature search such as breast cancer awareness measure version 2 (cancer research United Kingdom, King's College London 2010)<sup>[11]</sup> utilized to collect data after modified and translated into Arabic version to fit the nature of the study. This modified translated questionnaire comprises socio-demographic characteristics of participants and 27 questions covering the knowledge regarding risk factors, warning symptoms and signs and about knowledge of breast self-exam in 4 sections.

Data management and analysis were conducted by using Excel sheet and SPSS (Statistical Package for Social Sciences) computerized software for windows version 20. Descriptive statistics were presented as means and standard deviation SD for continuous variables and as frequencies and percentages for categorical variables. And responses of the students toward the questionnaire items were categorized into three categories (yes, no, I don't know) and represented as frequencies and percentages, these responses scored as for yes = 3, I don't know = 2 and no = 1. The percent score for students' responses in each specific item was calculated according to the following equation:

Total scores for all participants in the item  $\times 100/\text{maximum possible score for all participants in the same item}$  were total scores for all participants in the item =  $[(\text{No. of yes} \times 3) + (\text{No. of I don't know} \times 2) + (\text{No. of no} \times 1)]$  and maximum possible score for all participants in the same item =  $[\text{No. of total participants} \times 3]$ , based on Triple Likert Scale<sup>[12]</sup> and after approximation, the cutoff point of percent of knowledge categorized as student less than 60 considered as poor, 60-69% as fair while those with 70% or more were considered as good knowledge.

## RESULT

The total number of sample was 240 students with a mean age of  $(22.8 \pm 3.4)$  years, age range between (19 – 30) years. Highest percentage (75.83) % of the participants were single, whereas the percent of married status were (22.92) %, Students with no family history were (85.42) %, where the (14.58) % had

positive family history as shown in table 1

**Table (1): Socio-demographic characteristics of the sample.**

Variables	Number	(%)
Age/years (mean $\pm$ SD)	22.8 $\pm$ 3.4	
Marital status		
- Single	182	75.83
- Married	55	22.92
- Divorced	3	1.25
Family history of breast cancer		
- Yes	35	14.42
- No	205	85.58

Internet was the most common source of students' information 82 (34.17%) then mothers/relatives and friends which represent 45 (18.75%).as shown in table 2:

**Table (2): Sources of information regarding breast cancer(N=240)**

Internet	82	34.17
TV and Radio	37	15.42
Health care providers	20	8.33
Health care providers/mother, friends and relatives./TV and Radio	15	6.25
TV and Radio+Internet	13	5.42
TV and Radio + Mothers/Relatives	9	3.75
Others	23	9.58

Students' knowledge about the risk factors had poor knowledge regarding the percentage of those who answered correctly for each item. The maximum percentage of the risk factor was (23.33%) for no breast feeding, whereas the minimum percentage of the risk factor was (10.00)% which is the alcohol and smoking as presented in table (3).

**Table (3): Frequency Distribution of Students' Responses about Risk Factors of breast cancer.**

Questions	Yes		No		Don't know	
	N	%	N	%	N	%
The cancer is hereditary.	40	16.67	171	71.25	29	12.08
It gets more risky with advancing age.	41	17.08	163	67.92	36	15.00
Breast-feeding reduces the risk of getting it.	56	23.33	169	70.42	15	6.25
A painless lump mass in the breast is a risk factor for breast cancer.	32	13.33	180	75	28	11.67
The 1 <sup>st</sup> birth after 30 years old increases the risk of it.	43	17.92	148	61.67	49	20.42
Nulliparity is a risk factor of having this cancer.	35	14.58	178	74.17	27	11.25
Obesity and no physical activity increase the risk of having this cancer.	36	15.00	184	76.67	20	8.33
Menarche (below 11 years old) and late menopause (above 55 years old) increase the risk of having this cancer.	45	18.75	180	75.00	15	6.25
Taking contraceptive pills and hormone replacement therapy increase the risk of having this cancer.	29	12.09	203	84.58	8	3.33
Exposure to trauma in the breast increases the breast cancer risk.	25	10.42	50	20.83	165	68.75
Breast cancer is contagious.	95	39.58	33	13.75	112	46.67
Smoking & excessive alcohol drinking increase the risk of having this cancer.	24	10.00	197	82.08	19	7.92

The highest percentages of those who answered correctly of warning signs and symptoms was (15.42) % which is the puckering or dimpling of breast skin. The lowest percentages of this section were (10.42) % which refers to a change in the position of the nipple different from the normal is a signs of this cancer.as shown in table 4

**Table(4):Frequency distribution of students' responses about warning symptoms and signs.**

Questions	Yes		No		Don't know	
	N	%	N	%	N	%
A change in the position of the nipple different from the normal is a signs of this cancer.	25	10.42	200	83.33	15	6.25
Pulling of nipple into the breast is one of the signs of this cancer.	30	12.50	160	66.67	50	20.83
Pain in breast or armpit is one of the signsof this cancer.	26	10.83	190	79.17	24	10.00
Puckering or dimpling of breast skin is oneof the signs of this cancer.	37	15.42	194	80.83	9	3.75
Discharge or bleeding from the nipple is a signs of this cancer.	30	12.50	202	84.177	8	3.33
The presence of a lump or thickening in the breast or the armpit is a signs of this cancer.	35	14.58	173	72.08	32	13.33
The presence of rash on the nipple is a signsof this cancer.	35	14.58	100	41.67	105	43.75
Redness of breast skin is a sign of this cancer.	30	12.50	182	75.83	28	11.67
A change in size and shape of breast or nipple is a sign of this cancer.	33	13.75	128	53.33	79	32.92

Percentage of students' mentioned that they heard about the breast self – examination was (34.58)%, whereas low percentage of students' knowledge was the presence of one of the previously mentioned changes requires a consultation of a specialized doctor which had percent of (12.08)%.as shown in table 5:

**Table(5): Frequency distribution of students' responses about breast self - examination.**

Questions	Yes		No		Don't know	
	N	%	N	%	N	%
You heard about the breast self-examination.	83	34.58	45	18.75	112	46.66
The most suitable time for breast screening is one week after menstrual cycle.	40	16.67	170	70.83	30	12.50
Breast self-examination is done at least once in a month.	33	13.75	190	79.17	17	7.08
The presence of one of the previously mentioned changes requires a consultation of a specialized doctor.	29	12.08	192	80.00	19	7.92
Breast self-examination may be performed while having a bath.	41	17.08	195	81.25	4	1.67
Breast self-examination is important for an early detection of this cancer and it is considered one of the essentials to avoid it.	33	13.75	195	81.25	12	5.00

All sections percentage scores were less than (50)% and according to Likert scale the percent score for each section of the questionnaires was poor. The overall percent score of all students' knowledge about breast cancer (risk factors, warning signs and symptoms and breast self – examination) was poor (48.60%).as shown in table 6:

**Table (6): Distribution of students' knowledge percentage score by sections.**

Section	Percentage Score, %	Knowledge Description
Risk Factors.	49.54	poor
Warning Signs and Symptoms.	47.40	Poor
Breast Self – Examination.	48.88	Poor
Overall Percent Score.	48.60	Poor

## DISCUSSION

Breast cancer as a multi-etiology disease has created a significant health problem worldwide<sup>[13]</sup> It is well known that low cancer awareness contributes to delay in presentation of cancer symptoms and subsequent diagnosis leading to unfavorable outcomes<sup>[14]</sup>.

The mean age of the included female students in the current study was (22.8±3.4) years which is lower than that in Malaysia by Hadi M.A. et al about evaluation of breast cancer awareness among female university students 2010<sup>[15]</sup> a study conducted in the Muscat, Sultanat of Oman by Al Junaibi R.M. et al Knowledge and Awareness of breast cancer among university female students<sup>[16]</sup> 2011 and a study conducted by Habib F. et al, Awareness and knowledge of breast cancer among university students in Al-Madina Al-Munawara region 2010<sup>[17]</sup> which were (26.7±1.9 , 25.65±5.7 and 27±12.1) years respectively but it was higher than that of a study conducted by Boulos DNK. et al Awareness of breast cancer among female students at Ain Shams University, Egypt 2014 [18] which was (19.5±1.1) years.

On the other hand, only (14.58%) of the participants had family history of breast cancer which was nearly similar to other studies as Boulos DNK. et al<sup>[18]</sup> Al Junaibi R.M. et al<sup>[16]</sup> and Habib F. et al<sup>[17]</sup> which were

(16.1, 13.5 and 14%) respectively.

The main source of information regarding breast cancer was the internet (34.17%) while for the respondents of Habib F. et al<sup>[17]</sup> it was the television and radio (56.2%).

Regarding the knowledge responses of risk factors of the disease, highest percentage of correct responses although they were poor (no breast-feeding, early menarche and late menopause, delayed first birth after the age of (30) years (23.33%, 18.78% and 17.9%) respectively, while the lower level of awareness were for hereditary, obesity and no physical activity, contraceptive pills and hormone replacement therapy, smoking and excessive alcohol drinking (16.67%, 15%, 12%, 10%) respectively. In comparison, the students correct responses percentage were higher with AL Junaibi R.M. et al<sup>[16]</sup> for old age, cigarette smoking, high fat diet, no breast feeding, early menarche, contraceptive pills and late menopause which were (36.7%, 33.76%, 35%, 38.85%, 50.31%, 37.58% and 40.7%) respectively. In Boulos DNK. et al<sup>[18]</sup> the students gave different correct responses for (smoking, radiation to chest, genetic factors, age of first full term pregnancy >30 years) which were (66.9%, 63.7%, 63.7% and 5.9%) respectively.

The results of Hadi M.A. et al<sup>[15]</sup> showed more encouraging results for old age, family history, delay first birth, early menopause and early onset of menstruation, no breast feeding as (72.5%, 91.5%, 65%, 32%,

43.5% and 66%) respectively.

Regarding the awareness of the students of the warning signs and symptoms of breast cancer, the highest correct responses of the students were for puckering or dimpling of breast skin, the presence of lump and the presence of rash around the nipple as (15.42%, 14.58% and 14.58%) respectively, this was inconsistent with the study of Hadi et al in Malaysia<sup>[15]</sup> (dimpling of breast skin 58.5%, change in the breast shape 81.5%, painless breast lump 72%, lump under armpit 78.5% and nipple discharge 74.5%) also in Boulos DNK. et al<sup>[18]</sup> 81.6% of students identified breast lump, change in shape or retraction of the nipple and bloody nipple discharge accounting for (25.6% and 24.7%) respectively.

BSE is one of the important steps for identifying breast tumors at early stages<sup>[7]</sup> it is found that (34.5%) of the students in this study heard about BSE and they knew about suitable time and frequency to be performed (16.67% and 13.75%) respectively.

In AL Junaibi R.M. et al<sup>[16]</sup> (85.35%) knew that BSE is helpful in the early detection of breast cancer, (77%) knew how to perform it and (72.61%) knew the frequency of doing it monthly.

In Gwarzo UMD et al Knowledge and practice of breast self-examination among female undergraduate students of Ahmadu Bello University Zaria, Northwestern Nigeria<sup>[19]</sup> 2009 although nearly three quarters of the respondents (87.7%) had heard about BSE, only (19%) of them performing this examination monthly.

Finally, the overall level of awareness about the risk factors, signs and symptoms and BSE were insufficient (<60%). This was in agreement with that of Sambanje MN et al. Breast cancer knowledge and awareness among university students in Angola 2012<sup>[20]</sup> the overall mean score for non-medical students was (9.4±0.21) out of the total possible score of (25), while a study conducted by Early J., et al. about US female college students breast health knowledge, attitude and determinants of screening practices: New

implications for health education 2011<sup>[21]</sup> and Sait WA et al and about knowledge of breast cancer among young Saudi females 2010<sup>(22)</sup> students showed gap in women's knowledge of the breast health.

#### It can be concluded that:

All sections percentage scores of breast cancer risk factors, warning signs and symptoms and BSE were poor. The overall percent score of all students' knowledge was poor.

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