Knowledge and awareness about breast cancer among male and female students in Al-Bayan University in Iraq

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ABSTRACT
Breast cancer (BC) is the most common cancer and the primary cause of mortality due to cancer in female around the world and it comprises 18% of all women cancer. In Iraq, breast cancer accounts for approximately one third of the registered female cancer according to the Iraqi Cancer Registry and almost one quarter of female deaths from the disease. Previous studies in Iraq reported low awareness of BC among educated populations in Iraq.

Objective: To assess the level of knowledge toward BC among male and female students affiliated to Al-Bayan private University in Baghdad.
Methodology: 200 students have participated in this cross-sectional survey. (% 71, n=142) was female and (29%, n= 58) was male. The mean age of participants was (21.7± 3.22) years.

Questionnaire gathered data on respondents’ demographics, general knowledge (part A), risk factors (part B), prevention and treatment of BC (part C). In addition to their main source of information about BC. Frequency distributions and percentages were used to describe the knowledge tested within the questionnaire.

Results: General knowledge of female regarding part A of questionnaire was 67% and of male was 33%. Percentage of female correct answers belongs questions in part B was 74% and 26% for male. 76% of female answers in part C was correct in comparison to 23.6% of male answers. The overall resultsof knowledge among our participants was weak (71%), while the acceptable knowledge represents only 29%. The leading source of our participants’ information about BC was TV.

Conclusion: This study documented unexpected low level of knowledge about BC among male and female students, so educational campaigns toward BC is strongly needed through lectures, seminars and workshop in Universities. In addition to health education programs and advertisements about this disease through media such as TV targeted for both men and women.

Key words: Breast cancer, male and female knowledge, Iraq


INTRODUCTION
Breast cancer (BC) is the most common cancer and the primary cause of mortality due to cancer in female around the world and it comprises 18% of all women cancer. Incidence of breast cancer is predicted to increase 85 per 100.000 women by 2021(1). There is a huge difference in breast cancer survival rates worldwide, with an estimated 5-year survival of 80% in developed countries to below 40% for developing countries (2). In the middle east and Gulf region, the incidence of breast cancer is rising and affecting a younger population compared to the West. In the Arab world, there are very few breast cancer awareness programs (3).

In Iraq, BC ranks the first among the commonest malignancies among all the population and accounts for approximately one-third of the registered female cancers according to the latest Iraqi Cancer Registry which shows a trend for the disease to affect younger women(4). The low survival rate in less developed countries mainly attributed to the lack of awareness programs, in addition to the limited capacity for early diagnosis and ineffective multimodality treatment(5).
According to WHO early detection and screening could offer the most immediate hope for a reduction in related mortality (6). Thus in 2009, a ( National Breast Cancer Early Detection and Research Program) was established in Iraq whose main objectives include: providing diagnostic services, enhancing knowledge and skills of health personnel, promoting relevant studies, and raising the awareness of the general population to the common risk factors and means of early detection of the disease, with focus on mammography, clinical breast examination (CBE) and the breast self-examination (BSE) (7).

Epidemiological investigations suggested that BC mostly occurs in obese women and is higher in women above 50 years of age and rarely found before age of 20 years (8). The breast is an estrogen sensitive organ, birth control pills or estrogen replacement could be a trigger for breast cancer (9), early menarche, nulliparity, pregnancy after the age of 30, all these factors can increase the risk of BC (10). Alcohol consumption is linked with BC risk. This association was felt to be secondary to the fact that consumption of alcohol enhances level of hormones in the blood (11).

In Iraq, many patients are diagnosed at advanced stages resulting in higher mortality rates because of limited resources of routine mammography screening and inadequate knowledge among population about breast cancer, risk factors and BSE (12).

Several studies indifferent parts of the world aimed at assessing the knowledge, attitude and practice on breast cancer showed inadequate and limited knowledge among University students (7, 13, 14), nursing students (15, 16) and women (17, 18, 19) also male knowledge was limited toward BC and BSE (20, 21).

**AIM OF STUDY**

Our study will investigate the knowledge of male and female students about prevalence, detection, common risk factors, and main methods of prevention and treatment of BC. In addition to their sources of information about BC.

**METHODOLOGY**

A cross-sectional descriptive survey was conducted from January to April 2019 among students in different colleges in Al-Bayan University regarding their knowledge and awareness toward breast cancer. The needed sample size was estimated (using Epi Info program) to be 200 students (confidence limits 95%). The students answered a prepared questionnaire valid by the Breast Cancer Unit of Baghdad medical college (8). It was translated into Arabic language to be easier for students.

The questionnaire covered the sociodemographic characteristics of participants (age, sex, and marital status) and other three parts regarding awareness towards BC: **Part A** comprises knowledge about BC prevalence & detection. **Part B** consists of knowledge about the risk factors. **Part C** focuses on prevention and treatment measures used in BC. Questionnaire was also including section about the source of student’s information about BC. Correct answers scored 1, false answers or don’t know scored 0, so the total maximum score for knowledge was 15. Then the respondents were divided into two levels: 7 scores and less regarded as weak and more than 7 scores as acceptable level.

Data were analyzed by using SPSS, version 14. Frequencies, percentages, tables, and charts were used to describe study variables. Differences between two genders was measured with the qi- squared test. The association was considered statistically significant when P value was < 0.05.

**Ethical considerations:** Written permission was obtained from deanships of colleges included in the study before initiating the research. The participants were informed about the aim of study and those who freely agreed to participate were enrolled in the study.

**RESULTS**

**Description of the study sample (Table 1)**

This study assessed the level of breast cancer knowledge of 200 students with an average age of 21.7 ± 3.227. 58 of them were male and 142 were female, the majority of them (91%) was single and (9%) of them were married.

Table 1: Description of the study sample.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sex  
Male  58  29%  
Female  142  71%  
Age  
Minimum  Less than 20  
Mean  21.7  24%  
SD  3.227  
Marital Status  
Married  18  9%  
Single  182  91%  
Colleges  
Pharmacy  101  50.5%  
Nursing  52  26%  
Technical analysis  11  5.5%  
Law  36  18%  

<table>
<thead>
<tr>
<th>Statements</th>
<th>Male N (%)</th>
<th>Female N (%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC ranks the first in Iraq</td>
<td>15 (7.5%)</td>
<td>22 (11%)</td>
<td>0.87</td>
</tr>
<tr>
<td>BC is the commonest cancer worldwide</td>
<td>26 (13%)</td>
<td>60 (30%)</td>
<td>0.739</td>
</tr>
<tr>
<td>Tools for early detection</td>
<td>28 (14%)</td>
<td>50 (25%)</td>
<td>0.086</td>
</tr>
<tr>
<td>Best time of BSE during perimenopause</td>
<td>9 (4.5%)</td>
<td>21 (10.5%)</td>
<td>0.896</td>
</tr>
<tr>
<td>Best time of BSE during postmenopausal</td>
<td>10 (5%)</td>
<td>26 (13%)</td>
<td>0.858</td>
</tr>
<tr>
<td>Total knowledge</td>
<td>88 (33%)</td>
<td>179 (67%)</td>
<td></td>
</tr>
</tbody>
</table>

BSE: Breast self-examination

Students’ knowledge regarding (part B) of questionnaire (Table 3)

On asking the students about the association between the age and BC, 11.5% of male and 34.5% of female knew that old age is one of the risk factors, 7% of male and 24% of female related BC to nulliparity, 11.5% of male and 31% of female answered that late menopause increases the probability of BC, while only 3.5% of male and 7% of female knew that early menarche also increases the probability of BC in women. Concerning the relation of BC with obesity, oral contraceptive and alcohol consumption, 14%, 8% and 18.5% of male were aware of this relation respectively and 34%, 29.5% and 45% of female believed that there is a relation between BC and those risk factors. In general, the knowledge and awareness of female was acceptable about the relation of risk factors with BC was (74%) in comparison with male knowledge (26%) (figure 1).

Table 3: Correlation of knowledge about risk factors (part B) among male and female students.
## Statements

<table>
<thead>
<tr>
<th>Statements</th>
<th>Male N(%)</th>
<th>Female N(%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect of age on BC</td>
<td>23(11.5%)</td>
<td>69(34.5%)</td>
<td>0.250</td>
</tr>
<tr>
<td>Effect of nulliparity on BC</td>
<td>14(7%)</td>
<td>48(24%)</td>
<td>0.180</td>
</tr>
<tr>
<td>BC is related to late menopause</td>
<td>23(11.5%)</td>
<td>62(31%)</td>
<td>0.603</td>
</tr>
<tr>
<td>BC is related with early menarche</td>
<td>7(3.5%)</td>
<td>14(7%)</td>
<td>0.644</td>
</tr>
<tr>
<td>BC is related to the postmenopausal obesity</td>
<td>28(14%)</td>
<td>69(34.5%)</td>
<td>0.968</td>
</tr>
<tr>
<td>BC is related to oral contraceptive</td>
<td>16(8%)</td>
<td>59(29.5%)</td>
<td>0.640</td>
</tr>
<tr>
<td>BC is related to alcohol consumption</td>
<td>37(18.5%)</td>
<td>90(45%)</td>
<td>0.956</td>
</tr>
<tr>
<td><strong>Total knowledge</strong></td>
<td>148(26%)</td>
<td>411(74%)</td>
<td></td>
</tr>
</tbody>
</table>

### Student’s knowledge regarding (part C) of questionnaire (Table 4)

The proportion of those who knew methods of treatment were 13.5% of male and 44.5% of female, while 14% of male only and more than half of female (54%) knew that early detection is the best approach to BC control. These items show significant difference between male and female with p < 0.05. On asking about the preventive measures against BC such as alcohol abstinence, physical activity, health diet, ideal body weight and avoiding hormonal therapy, (15%) of male only correctly identified the prevention measures against BC while (41%) of female had correct knowledge. Information of female about treatment, control and prevention of BC was acceptable (76.4%) compared with limited awareness among male students (23.6%) (figure 1).

### Table 4: Correlation of correct knowledge about prevention and treatment (part C) among male and female students.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Male N(%)</th>
<th>Female N(%)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods of BC treatment</td>
<td>27(13.5%)</td>
<td>89(44.5%)</td>
<td>0.036 S</td>
</tr>
<tr>
<td>Early detection to control BC</td>
<td>28(14%)</td>
<td>108(54%)</td>
<td>0.000 S</td>
</tr>
<tr>
<td>Preventive measures against BC</td>
<td>31(15.5%)</td>
<td>82(41%)</td>
<td>0.578</td>
</tr>
<tr>
<td><strong>Total knowledge</strong></td>
<td>86(23.6%)</td>
<td>279(76.4%)</td>
<td></td>
</tr>
</tbody>
</table>

*S = significantly difference, N = number, % percentage*

![Figure 1](http://doi.org/10.36295/ASRO.2020.23103)
Figure 2 described the low level of the overall knowledge in all students regarding three parts of questionnaire in which the results were 22.5%, 47%, and 30.5%.

**Figure 2:** Description of correct knowledge among all participants regarding three parts of questionnaire

**Total knowledge among male and female students (Table 5, Figure 3)**

The level of knowledge and awareness among all the students regarding the three parts of questionnaire was weak (71.7%) and only (29%) revealed acceptable knowledge and awareness about BC.

**Table 5**: Level of the overall knowledge toward BC among all students.

<table>
<thead>
<tr>
<th>Degree</th>
<th>Male N(%)</th>
<th>Female N(%)</th>
<th>Total N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>45(31.5%)</td>
<td>98(68%)</td>
<td>143(71.7%)</td>
</tr>
<tr>
<td>Acceptable</td>
<td>13(23%)</td>
<td>44(77%)</td>
<td>57(28.5%)</td>
</tr>
</tbody>
</table>

**Figure 3**: Level of overall knowledge and awareness toward BC among all students.

**Student’s sources of information (Table 6)**

The answers indicated that (28%) of total students derived their knowledge from TV, (2.5%) from radio, (15%) from physician, (9.5%) from magazine, (3.5%) from folder, (2%) from health centers, (2.5%) from national program for cancer research, and 13% had more than one source, while 23% declared that they had never heard about BC.
Table 6: Sources of information about BC among male and female students

<table>
<thead>
<tr>
<th>Source of information</th>
<th>Male N (%)</th>
<th>Female N (%)</th>
<th>Total N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TV</td>
<td>12(6%)</td>
<td>44(22%)</td>
<td>56(28%)</td>
</tr>
<tr>
<td>Radio</td>
<td>2(1%)</td>
<td>3(1.5%)</td>
<td>5(2.5%)</td>
</tr>
<tr>
<td>physician</td>
<td>5(2.5%)</td>
<td>26(13%)</td>
<td>31(15.5%)</td>
</tr>
<tr>
<td>Magazine and newspaper</td>
<td>4(2%)</td>
<td>15(7.5%)</td>
<td>19(9.5%)</td>
</tr>
<tr>
<td>Poster or folder</td>
<td>1(0.5%)</td>
<td>6(3%)</td>
<td>7(3.5%)</td>
</tr>
<tr>
<td>Health center</td>
<td>2(1%)</td>
<td>2(1%)</td>
<td>4(2%)</td>
</tr>
<tr>
<td>National program for cancer research</td>
<td>2(1%)</td>
<td>3(1.5%)</td>
<td>5(2.5%)</td>
</tr>
<tr>
<td>More than one source</td>
<td>7(3.5%)</td>
<td>19(9.5%)</td>
<td>26(13%)</td>
</tr>
<tr>
<td>I have never heard</td>
<td>23(11.5%)</td>
<td>24(12%)</td>
<td>47(23.5%)</td>
</tr>
</tbody>
</table>

DISCUSSION

BC is the commonest female cancer(22). In Iraq and other developing countries, fatality rate rises because of rising the incidence rates, higher frequencies of younger ages and prevalence of more aggressive tumors forms(23).

According to WHO, enhancing BC outcome and survival by early detection remains the foundation of BC regulation(1). The international program guidelines of early detection include a combination of monthly BSE, regular CBE, and mammography every two years after the age of 40(24).

Most previous studies aimed at investigating the level of knowledge of breast cancer among college students focused on female students and women. We choose to include male students in our study and to compare their awareness with female students. Knowledgeable men can be source of knowledge and can act as pillars of support to affected partners, relatives and friends(14).

In addition, studies included male are important in our society to encourage the male to be aware about detection, risk factors and treatment of BC and to be supportive for his wife, mother, daughter, sister and relatives.

This study stated that about two third of the participants revealed to have low overall knowledge toward BC. 71.7% scored less than 50% of correct answers and only 29% of the participants showed acceptable knowledge (table 6). Our results are consistent with previous studies conducted among students in Jeddah(3), Ethiopia(25), Malaysia(26) and Nigeria(27).

The first part of the questionnaire was designed to assess knowledge of university students about prevalence and detection of BC. 89% of female and 92% of male were not aware that breast cancer is the commonest malignancy among the Iraqi population and only 30% of female and 13% of male aware that it is the commonest cancer among women worldwide (table 2).

Control of modifiable breast cancer risk factors such as maintaining healthy weight, regular exercise and reducing alcohol intake could eventually have an impact in reducing the incidence of BC, however these strategies cannot eliminate the majority of BC. Therefore, early detection is the cornerstone of BC control and improving the survival rate(28). Almost 54% of female and 14% of male knew that the best way to control BC was through early detection, but most of them had poor knowledge about the screening tools. These results are less than findings in other Iraqi universities which was 43.8%(7).

More than 85% of male and female showed weak awareness about the correct frequency and timing of performing BSE before or after menopause (table 2). This finding is in agreement with data from study conducted in Ajman(29) in which 98% of participants unaware of the recommended frequency of BSE and 94% unaware of its timing in
relation to the menstrual cycle. Our results also emphasized the limited knowledge of female students (86%) about the recommended frequency of BSE in a survey in Saudia Arabia (30).

Concerning the third part of questionnaire in which the knowledge of our participants was assessed about modifiable risk factors, the majority of male (74%) in our survey showed a general lack of information regarding risk factors compared with (74%) of female who scored correct answer (table 3).

Most of our participants awarded that alcohol consumption could increase the probability of developing BC but less of them know that early menarche and late menopause may increase the probability of BC. This finding is similar to results revealed by a study in Ajman (29) in which the student’s information about those three factors was 60%, 23%, and 40% respectively.

34% of female and 14% of male only recognized the relation between obesity and BC (table 3). Similar study in Turkey (31) reported that their participants who were aware of this risk factor was only 23%.

Table 3 shows that 34.5% of female and only 11.5% of male knew that aging increased the risk of BC, these finding is less than percentage reported in previous studies (7, 25, and 29).

Regarding the hormonal replacement therapy, 29.5% of female scored correct answer and only 8% of male had knowledge about this important risk factor (table 3). This is again less than results found among students in Ethiopia (25) (60.7%) and Ajman (29) (49%).

This weak knowledge among our participants about risk factors agreed with finding of an international survey involved university students of 23 countries which were found to have poor knowledge (32).

The third part of the questionnaire assessed the knowledge about prevention and treatment of BC. About two thirds of our female students had acceptable knowledge about prevention and treatment measures of BC while only 23.6% of male had idea about these methods (table 4).

In the present study, it was concluded that the overall knowledge of our participants was weak (table 5). Nevertheless, female knowledge was acceptable when compared with male knowledge concerning the three parts of our questionnaire (table 2, 3, 4). Our findings agree with other studies conducted among male partners and revealed their low knowledge about BC (33, 34).

In this study, TV was the major source of information among the participants about BC (table 6). Other researchers have reported similar findings from Singapore (35), Pakistan (36), Lebanon (37), and Iran (38).

Conclusion:

This study documented unexpected low level of knowledge about BC among male and female students, so educational campaigns toward BC is strongly needed through lectures, seminars and workshop in universities. In addition to stressed the health education programs and advertisements on TV as a mean to deliver information targeted men and women.

Limitation of study:

This study is limited by its small sample size and pilot study. Large samples needed for further studies.

References


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