Breast Cancer Knowledge, Attitude, Concepts and Related Effect of Education among Iraqi Women in Baghdad

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Abstract:
Objective: *The main aim of the study is to determine the level of knowledge, attitude and concepts about breast cancer among sample of Iraqi women attending the main breast cancer early detection center in Baghdad and to study the effect of education on them.*
Study Design: *This is a descriptive cross - sectional study.*
Method: *This cross-sectional study recruited 320 women attending the main breast cancer early detection center in Baghdad aged between (18–63years) collected on May 2010. The knowledge, attitude and concepts about breast cancer are assessed through answers of participants to a structured questionnaire (including six questions for studying the patient's knowledge about correlation between breast cancer and lifestyle, sixteen questions for studying the patient's concepts about breast cancer, and eleven questions to assess patient's knowledge about breast cancer risk factors and demographic variables). Statistical analysis of data is done by application of (SPSS version 14) program. The sample is divided into four groups according to their level of education into (illiterate, primary school, intermediate and secondary school, and college and above) and compared their knowledge, attitude and concepts.*
Results:
Results show that level of education of participants have variable effect on their knowledge, attitude and concepts about breast cancer, some in favor of higher educational level and it is significant (p value< 0.05) regarding knowledge about exercise and excessive intake of fatty diet correlated with breast cancer, while other in favor lower educational level and it is significant (p value< 0.05) regarding concepts like "breast cancer is a killer, dangerous and cannot be cured, caused by pollution, breast creams and body deodorants", and on knowledge about certain risk factors of breast cancer (smoking, alcohol intake and childhood radiation)
Fortunately only (3.5%) of the total sample thought that breast cancer is not curable, only (0.8%) of them thought that having breast lump do not draw attention, (7%) of them thought that breast cancer is infectious disease and only (7.4%) of them thought that breast cancer is not dangerous and easily cured. Unfortunately the mean score of participants' knowledge about breast cancer risk factors is (28.9±26.63). Our results show that the lowest educational level group represented by illiterate and primary school have higher mean score of knowledge of breast cancer risk factors than the highest level group represented by secondary school and above with significant difference between them (p<0.05)
Conclusion: *Our conclusion is that the Iraqi women have poor attitude and bad concepts towards breast cancer as they have poor knowledge about breast cancer risk factors. Attitude towards breast cancer and practice of BSE can be enhanced through promotion of their knowledge about breast cancer, this can be achieved by promotion of teaching programs through visual media, symposiums, meetings, educational workshops and conferences, teaching folders and posters and by inserting such programs through the curriculum of intermediate, secondary school and college.*
Keywords : *Knowledge, attitude and concepts of breast cancer.*

I. Introduction

Breast cancer is the most common cancer in women in Iraq [1] and worldwide, comprising 16% of all female cancers. It is estimated that 519 000 women died in 2004 due to breast cancer, and although breast cancer is thought to be a disease of the developed world, a majority (69%) of all breast cancer deaths occurs in developing countries (WHO Global Burden of Disease, 2004) [2].Medical advances have shown that one-third of all cancers are preventable and a further one-third, if diagnosed sufficiently early, is potentially curable. This observation demands that cancer control should be of increasing priority in the health care programs of developing countries. [3,4]..

There are a variety of health behaviors ranging from health-enhancing behaviors (e.g. exercise and healthy eating), health protection behaviors (e.g. screening), to avoidance behaviors (e.g. not smoking, not consuming alcohol). Research showed that people are engaged in a variety of these behaviors [5].

In order to explain such variability, different social cognitive theories have been formulated. These models (e.g., The Theory of Planned Behavior, TPB, Ajzen, 1988; Social Learning Theory, SLT, Rotter, 1966; Social Cognitive Theory, Bandura, 1997) have focused on cognitive variables like the perception of control and suggest that this construct plays an important role in psychological well being[6].

There are known breast cancer risk factors that include age, family history, null parity, age at first pregnancy, and total duration of active menses [7]. Approximately 75 percent of breast cancers, however, occur in women with no known risk factors [8]. Thus, all women must be considered at potential risk of the disease. The likelihood that someone will take a preventive health action is based on the person's (a)perceived susceptibility to a disease; (b)perceived severity of a disease; (c) assessment of whether the benefits of performing the desired action outweigh the perceived costs and barriers; and (d) acceptance of effective cues to action, either of an internal or external nature [9]. Subsequent research [10] suggests a fifth component, self-efficacy, or the confidence that one can carry out the activity needed to produce the desired outcome. A review of the HBM by Janz and Becker shows overall support for the model, and that the concepts should be a part of health education and behavior change planning. [11]

II.   Objectives

The main aim of the study is to determine the level of knowledge, attitude and concepts about breast cancer among sample of Iraqi women attending the main Breast Cancer Early Detection Center in Baghdad and to study the effect of education on them.

III.   Methodology

This cross-sectional study recruited 320 women attended the main breast cancer early detection center in Baghdad aged between (18–63years) collected on May 2010. The knowledge, attitude and concepts about breast cancer are assessed through answers of participants to a pre-coded structured questionnaire (including six questions for studying the patient's knowledge about correlation between breast cancer and lifestyle, sixteen questions for studying the patient's concepts about breast cancer, and eleven questions to assess patient's knowledge about breast cancer risk factors demographic variables). The sample is divided into four groups according to their level of education into (illiterate, primary school, intermediate and secondary school, and college and above) and compared their knowledge, attitude and concepts.

1- **Questionnaires used for assessment participants' knowledge about correlation between breast cancer and lifestyle**. **The answer is either "yes" or "No":**
2- **Questionnaires used for assessment of participants' concepts about breast cancer. Participants are allowed to choose more than one item**
3- **Questionnaires used for assessment of participants' knowledge about breast cancer risk factors. Participants are allowed to choose more than one item:**
Participants are given a score for the knowledge of breast cancer risk factors and calculated as a percentage.
Statistical Analysis: The data is analyzed by using the SPSS program version 14. Data are collected and described by using number, mean, standard deviation, percentage, frequency tables, graphs, range, association between variables are measured by chi-square and Anova tests. The association is considered to be statistically significant when P value< 0.05.

IV.   Results

Results are summarized in the following tables and graphs

Table 1: Effect of Level of Education on Patient's Knowledge About Correlation between Breast Cancer and Lifestyle
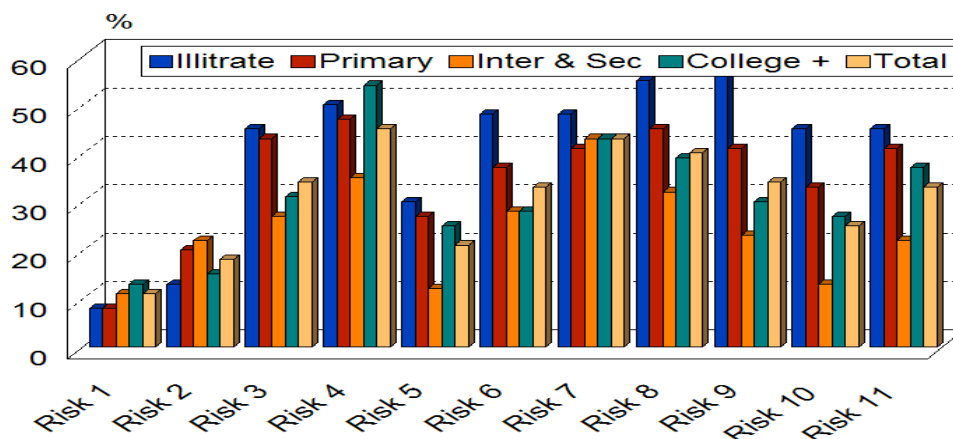
Question	Answer	Level of Education				P value for Level of Educations	Total
		Illiterate (n/N)%	Primary School (n/N)%	Intermediate and Secondary School (n/N)%	College and above (n/N)%		
Q1: Exercise may decrease the probability of breast cancer.	yes	29/46 (63%)	41/61 (67.2%)	102/128 (79.7%)	58/68 (85.3%)	0.028	230/303 (75.9%)
Q2: Obesity could be a cause of breast cancer.		24/45 (53.3%)	33/57 (57.9%)	72/127 (56.7%)	41/67 (61.2%)	0.886	170/296 (57.4%)
Q3: Excessive intake of fatty diet and fried food can increase the risk of breast cancer.		28/41 (68.3%)	29/44 (65.9%)	87/103 (84.5%)	45/55 (81.8%)	0.023	189/243 (77.8%)
Q4: Eating vegetables may increase risk of breast cancer.	No	40/41 (97.6%)	40/44 (90.9%)	97/103 (94.2%)	52/55 (94.5%)	0.531	229/243 (94.2%)
Q5: Eating fruits may increase risk of breast cancer.		41/41 (100%)	43/44 (97.7%)	103/103 (100%)	55/55 (100%)	0.204	242/243 (99.6%)
Q6: Eating carbohydrates may increase risk of breast cancer.		37/41 (90.2%)	40/44 (90.9%)	99/103 (96.1%)	50/55 (90.9%)	0.267	226/243 (93%)

The data presented in Table 1 ,the correct answers of participants to six questionnaires for assessment of samples' knowledge about breast cancer and its relation with lifestyle and demonstrates the effect of education on it. There is a significant effect of education on correct answers of knowledge about questionnaires 1 and 3. Higher educational level participants' correct answers are highest in nearly all questions, but there is no significant difference among them (p value> 0.05).

Table 2: Effect of Education on Patient's Concepts about Breast Cancer

Theme	Level of Educations				P value	Total
	Illiterate (n/N)%	Primary School (n/N)%	Intermediate and Secondary School (n/N)%	College and above (n/N)%		
1.Breast cancer is the most common cancer in Iraqi female	41/46 (89.1%)	50/61 (82%)	105/123 (85.4%)	62/67 (92.5%)	0.259	258/297 (86.9%)
2.Breast cancer is a Killer	26/47 (55.3%)	32/63 (50.7%)	57/129 (44.1%)	20/68 (29.4%)	0.023	135/307 (44%)
3.Breast cancer is Infectious disease	4/47 (8.5%)	7/63 (11.1%)	8/129 (6.2%)	3/68 (4.4%)	0.465	22/307 (7.1%)
4.Breast cancer is Hereditary disease	20/47 (42.5%)	28/63 (44.4%)	61/129 (47.2%)	34/68 (50%)	0.849	143/307 (46.5%)
5.Dangerous but can be cured	18/47 (38.2%)	29/63 (46%)	62/129 (48%)	39/68 (57.3%)	0.130	148/307 (48.2%)
6.Dangerous and cannot be cured	16/47 (34%)	8/63 (12.6%)	15/129 (11.6%)	5/68 (7.3%)	0.0003	44/307 (14.3%)
7.Not Dangerous and easily cured	3/47 (6.3%)	3/63 (4.7%)	13/129 (10%)	4/68 (5.8%)	0.517	23/307 (7.4%)
8.Caused by un healthy diet	15/44 (34%)	15/56 (26.7%)	27/117 (23%)	15/68 (22%)	0.467	72/285 (25.2%)
9.Caused by abnormal genes	22/44 (50%)	39/56 (69.6%)	78/117 (66.6%)	48/68 (70.5%)	0.118	187/285 (65.6%)
10.Caused by pollution	22/44 (50%)	15/56 (26.7%)	28/117 (23.9%)	13/68 (19.1%)	0.002	78/285 (27.3%)
11.Caused by body deodorant	11/44 (25%)	7/56 (12.5%)	9/117 (7.6%)	5/68 (7.3%)	0.011	32/285 (11.2%)
12.Caused by breast cream	15/44 (34%)	14/56 (25%)	18/117 (15.3%)	9/68 (13.2%)	0.018	56/285 (19.6%)
13.Having breast lump is disturbing	35/42 (83.3%)	40/49 (81.6%)	77/102 (75.4%)	58/65 (89.2%)	0.173	210/258 (81.3%)
14.Breast lump can be cured easily	6/42 (14.3%)	5/49 (10.2%)	20/102 (19.6%)	5/65 (7.7%)	0.144	36/258 (14%)
15.Breast lump is not curable	1/42 (2.4%)	3/49 (6.1%)	4/102 (3.9%)	2/65 (3.1%)	0.800	10/258 (3.9%)
16.Having breast lump do not draw attention	0/42 (0%)	1/49 (2%)	1/102 (1%)	0(0%)	0.614	2/258 (0.8%)

This table summarizes the answers of the participants to sixteen questions for assessment of samples' concepts about breast cancer and demonstrates the effect of level of education on it. There is significant effect of education on patients' concepts about breast cancer in answers of questions 2, 6, 10, 11 and 12 (p value< 0.05) at which participants of educational level below intermediate school have higher percentages of bad concepts than those with higher educational level, including "breast cancer is a killer, dangerous and cannot be cured, caused by pollution, breast creams and body deodorants. Fortunately only (3.5%) of the total sample thought that breast cancer is not curable, only (0.8%) of them thought that having breast lump do not draw attention, (7%) of them thought that breast cancer is infectious disease and only (7.4%) of them thought that breast cancer is not dangerous and easily cured.

Graph 1: Effect of Education on Knowledge about Risk Factors of Breast Cancer

Table 3: Effect of Education on Knowledge About Risk Factors of Breast Cancer

Risk Factor	Level of Education				*P* value for Level of Education	Total (N*/N#)%
	Illiterate (n/N)%	Primary School (n/N)%	Intermediate & Secondary School (n/N)%	College and above (n/N)%		
1.Early Menarche	3/40 (7.5%)	4/50 (8%)	11/100 (11%)	9/67 (13.4%)	0.716	27/257(10.5%)
2.Late Menopause	5/40 (12.5%)	10/49(20.4%)	22/100 (22%)	10/67(14.9%)	0.482	47/256(18.4%)
3.OCP intake of OCP for more than >5 years	18/40 (45%)	21/49(42.9%)	27/100 (27%)	21/67(31.3%)	0.099	87/256 (34%)
4.Never breast feeding	20/40 (50%)	23/49(46.9%)	35/99(35.4%)	36/67(53.7%)	0.099	114/255(44.7%)
5.Aging	12/40 (30%)	13/49 (26.5)	12/100 (12%)	17/67(25.4%)	0.037	54/256(21.1%)
6.Breast enlarging substances	19/40(47.5%)	18/49(36.7%)	28/100 (28%)	19/67(28.4%)	0.116	84/256(32.8%)
7.Stress	19/40(47.5%)	20/49(40.8%)	43/100 (43%)	29/67(43.3%)	0.937	111/256(43.4%)
8.Heredity	22/40 (55%)	22/49(44.9%)	32/100 (32%)	26/67(38.8%)	0.073	102/256(39.8%)
9.Smoking	23/40(57.5%)	20/49(40.8%)	23/100 (23%)	20/67(29.9%)	0.0007	68/256 (26.6%)
10.Alcohol intake	18/40 (45%)	16/49(32.7%)	13/100 (13%)	18/67(26.9%)	0.0005	65/256 (25.4%)
11.Childhood Radiation Exposure	18/40 (45%)	20/49(40.8%)	22/100 (22%)	25/67(37.3%)	0.019	85/256 (33.2%)

This table summarizes the correct answers of participants to eleven questions for assessment of samples' knowledge about breast cancer risk factors and demonstrates the effect of education on it. There is significant effect of education on correct answer of three questions (*p* value< 0.05) including smoking, aging alcohol intake and childhood radiation exposure with higher percentage of correct answers to low educational group (illiterate and primary) (in comparison to the higher educational group (intermediate and secondary and college) group. This is illustrated in graph 1.

Table 4: Distribution of Participants' of Correct Answers about Breast Cancer Risk Factors

Education	N	Mean Score	Std. Deviation	Std. Error	Minimum Score	Maximum Score
Illiterate	43	40.2349	28.98343	4.41993	.00	81.80
Primary school	53	32.3132	29.46540	4.04738	.00	91.00
Intermediate &secondary school	109	22.4898	21.31730	2.04183	.00	91.00
College and above	68	29.5574	28.06468	3.40334	.00	100.00
Total	273	28.9523	26.63252	1.61187	.00	100.00

Table 4 shows the distribution of participants' score (100%) of correct answers to the eleven questions about breast cancer risk factors (mentioned in table 3) which reviles that the lowest educational groups represented by illiterate and primary school groups have the highest mean score (40.23±29.98), and (32.31±29.46) respectively when compared with the highest educational levels. The mean score of the total sample is (28.95±26.63).

Table 5: Multiple Comparisons between the four levels of education on the score of knowledge of Breast Cancer Risk Factors

(I)	(J)	Mean Difference (I-J)	Std. Error	Significance
Illit	Pri	7.92168	5.34262	.139
	Inter+sec	17.74507*	4.68775	.000
	College +	10.67753*	5.07181	.036
Pri	Illit	-7.92168-	5.34262	.139
	Inter+sec	9.82339*	4.35910	.025
	College +	2.75585	4.76970	.564
Inter+sec	Illit	-17.74507-*	4.68775	.000
	Pri	-9.82339-*	4.35910	.025
	College +	-7.06754-	4.02262	.080
College +	Illit	-10.67753-*	5.07181	.036
	Pri	-2.75585-	4.76970	.564
	Inter+sec	7.06754	4.02262	.080

* The mean difference is significant at the 0.05 level.

(I) is group with which the comparison is done.

(J) is the group that is compared with (I).

Table 5 shows the multiple comparisons between the four levels of education on the score of knowledge that is mentioned in the previous table which shows that the difference is significant when we compare the illiterate and primary school with intermediate and secondary school, and college with illiterate.

V. Discussion

Delayed presentation of symptomatic breast cancer of three months or more is associated with lower survival rates [12]. A recent fall in deaths from breast cancer has been reported due to improved survival from a combination of earlier diagnosis, breast screening and improvement in treatment methods [13]. The relative contribution of these factors remains to be clarified. In the meantime, breast cancer continues to represent a major public health problem, and further gains in survival might be achieved by encouraging women to seek help more promptly. Understanding the factors that influence patient delay is a prerequisite for the development of strategies to shorten delays [14].

Overweight and obesity, as measured by high body mass index (BMI), moderately increases the risk of post-menopausal breast cancer and is one of the few modifiable risk factors for breast cancer. Physical activity probably protects against breast cancer, with studies showing a 20-40% risk reduction for women in the highest category of physical activity [15].

There has been a lot of research into the effects of dietary factors on breast cancer risk, but findings are generally inconsistent and inconclusive. The strongest evidence seems to be for fat intake: a meta-analysis of 45 studies reported that higher total fat intake increased breast cancer risk by 13% while a recent cohort study showed a small but significant risk increase for higher intakes of saturated, monounsaturated and polyunsaturated fat [16]

Findings from the Women's Health Initiative randomized controlled trial in the United States in 2006 suggested that for women with the highest intake of fat in their diet, changing to a low-fat diet can reduce the risk of breast cancer by around 20% [17].The data from several studies generally show a statistically significant inverse association for consumption of fruit, green vegetables, and carrots and breast cancer[18], however only quarter of our participants perceive the link between breast cancer and unhealthy diet (table 2) , this mean that our population need more educational programs to enhance intake of healthy diet.

Our study shows that a high percentage of participants (>75%) perceive the importance of exercise and physical activity, eating vegetables and fruits in decreasing the risk of breast cancer, while more than 40% of our participants (which is high percentage) do not know that obesity could be a cause of breast cancer. There is no significant effect of educational level on perception of most of healthy life style we asked about (table 1and 2) which indicate the deficient awareness programs in our community that the patients can benefit from neither from schools curriculum nor through their lifetime experiences.

One of the greatest challenges in health promotion in contemporary societies is securing compliance with medical recommendations such as the adoption of healthy lifestyles and body screening. Under the current health promotion paradigm based on the biomedical model, individuals are expected to behave in ways that health promotion advocates assume to be the basis of sustained good health. Health education is seen to be one of the most effective means to empower individuals to make healthy choices and is thus central to health promotion [19].Fortunately most of our participants (86.9%) know that breast cancer is the most common cancer among Iraqi women. In spite of being (48.2%) of participants thought that breast cancer is a dangerous disease and can be cured, and that only (14.3%) of them thought that "it cannot be cured", but the concept of being a" killer" and "having breast lump is disturbing "which is mentioned by (44 %) and (81.2%) of participants respectively may have a negative impact on certain behaviors preventing them from submission to the known breast cancer early detection methods and screening tools of breast cancer like breast self examination, clinical breast examination and screening mammography which supposed to detect a "disturbing breast lump with a killer disease"!. Although only (3.9%) in our participants thought that "breast lump is not curable" and only (0.8%) of them thought that "having breast lump do not draw attention" which is a low percentage, but these believes should be changed to adapt the healthy behavior in our society (table 2).

About (7.1%) of participants in our study thought that breast cancer is an infectious disease (contagious), great effort should be done to change this concept which will prevent them from seeking medical advice in breast cancer centers fearing from contact with patients with breast cancer.

Different researches were done to find the relation between the use of antiperspirant deodorant and the risk of breast cancer.Darbre (2004) carried out a study on 20 samples of human breast tumor to detect the level of parabens (cosmetic preservatives that can mimic the action of estrogen). In 4 of the 20 tumors, total paraben concentration was more than twice the average level. In spite of this finding, Darbre (2004) suggests more studies are needed to support or refute this hypothesis [20]. On the other hand, some experts think that perspiration does not eliminate toxins and there are in fact no toxins in sweat, which is made up of water, sodium, potassium, and magnesium [21]. The relation between antiperspirant use and breast cancer is considered as a myth in another website [22]. An Iraqi study curried out at Al-NahrainUniversiyy, 2006, failed to find a link between antiperspirant use and breast cancer. In fact this study showed that antiperspirant use was higher among the control group than the cancer cases. In our study (11.2%) of our participants thought that deodorants can cause breast cancer, however further researches are recommended to agree or refute such believe. [23]. Our results show that the lowest educational level group represented by illiterate and primary school have higher mean score of knowledge of breast cancer risk factors than the highest level group represented by secondary school and above with significant difference between them (table 4 and 5), this may be explained by that those participants of lower educational level could be of older age and thus they have gained their knowledge from their life experience especially from contact with women with breast cancers and their relatives, however, ideally knowledge should be gained at younger age group when they can benefit from their knowledge in prevention of breast cancer.

When the knowledge and attitude towards breast cancer is so low, the majority of the affected patients present late in hospital when little or nothing can be done again [24]. Less than (45%) of our participants

answered the questions related to breast cancer risk factors knowledge correctly (table 7), the mean score of our participants is around (28.95±26.63) (table 4) indicating the general low level of knowledge among our participants, which is comparable to what is reported by previous studyfound that knowledge aboutbreast cancer was poor in about halfof the targeted educated population;51.2% scored less than 50% of correctanswers. Only 15% of the answerswere graded as 'Good" and over witha highly significant difference betweenthe 3 study groups, the best scorebeing achieved by the teaching staff. [25,26]

There is an Iranian study of Breast cancer knowledge, perception and BSE which is curried out among Iranian women reported by Parisa Parsaa et al, 2005 found that the majority of Iranian women need more education about breast cancer, which is comparable to our results. [27] Our results show that there is no significant effect of education on knowledge about most of questions about breast cancer risk factors which indicate deficient teaching programs during puberty and adulthood in our society.

VI.   Conclusion And Recommendations

Our conclusion is that the Iraqi women have poor attitude and bad concepts towards breast cancer as they have poor knowledge about breast cancer risk factors. Attitude and practice of breast cancer and BSE can be enhanced through promotion of their knowledge about breast cancer and learning Iraqi women the right way of BSE, this can be achieved by promotion of teaching programs through visual media, symposiums, meetings, educational workshops and conferences, teaching folders and posters and by inserting such programs through the curriculum of intermediate, secondary school and colleges.

References

[1].   Iraqi Cancer Board. Iraqi Cancer Registry 2012. Baghdad, Ministry of Health, 2014.
[2].   WHO (2008). The global burden of disease: 2004 update.
[3].   Chacko S "Effectiveness of Planned Teaching Program me on Knowledge ofEarly Detection of Breast Cancer Among School Teachers"; IOSR Journal of Nursing and Health Science, (2016),Volume 5, Issue 5, PP 49-54.
[4].   Jenkins K.: One Third of Cancer Deaths Could Be Prevented by Lifestyle; Medscape Medical News,2017, December 22.
[5].   BeznerJ.:Promoting Health and Wellness: Implications for Physical Therapist Practice.Physical Therapy,2015, Volume 95, Issue 10, Pages 1433–1444
[6].   Neipp M.,López-Roiget,S.Terol M.: Changes in control beliefs, emotional status and psychosocial adaptation among women with breast cancer.anales de psicología, 2009, vol. 25, n.1(junio), 36-43.
[7].   Katz, J.,Lee M.: Breast Cancer Risk Factors Medscape,2017, 68: 789.
[8].   Pięta, B.: Past obstetric history and risk of ovarian cancer. (AAEM)2012,
[9].   Croyle, R..: Division of Cancer Control and Population Sciences. National Cancer Institute 2005,PP.58-66.
[10].   CM Dougherty, SK Johnston, EA Thompson, A.: Reliability and Validity of the Self-Efficacy Expectations and Outcome Expectations After Implantable Cardioverter Defibrillator Implantation Scales. Applied Nursing Research, 2007,Volume 20, Issue 3, Pages 116-12484: 191-215.
[11].   Jones, L.Jensen,J.,Scherr,C., Brown, N.: The Health Belief Model as an Explanatory Framework in Communication Research: Exploring Parallel, Serial, and Moderated Mediation. PMC 2015; 30(6): 566–576
[12].   Caplan L.:Delay in Breast Cancer: Implications for Stage at Diagnosis and Survival. Br J Cancer, Front Public Health. 2014; 2: 87.
[13].   Peto R, Boreham J, Clarke M, Davies C, Beral V, UK and USA breast cancer deaths down 25% at ages 20 – 69. The Lancet, 2000, 355:1822.
[14].   Grunfeld EA, Ramirez AJ, Hunter MS, Richards MA :Women's knowledge and beliefs regarding breast cancer. 2002 May 6; 86(9): 1373–1378.
[15].   Maruti, SS., Willett, WC, Feskanich, D.,et al A prospective study of age-specific physical activity and premenopausal breast cancer J Natl Cancer Inst 2008. 100:728-37.
[16].   Boyd, N.F., Stone, J. et al Dietary fat and breast cancer risk revisited: a meta-analysis of the published literature. Br J Cancer 2003; 89; 9; 1672-85.
[17].   Prentice, R.L. et al.,Low-fat dietary pattern and risk of invasive breast cancer: the Women's Health Initiative Randomized Controlled Dietary Modification Trial JAMA 2006. 295(6):629-42.
[18].   Zhang,C., Ho S., Chen,Y., Fu,J., Cheng S., and Lin F.:Greater vegetable and fruit intake is associated with a lower risk of breast.Int. J. Cancer: 2009,125, 181–188
[19].   Bunton, R. and Macdonald, G. :Health promotion: Disciplines, diversity and developments.(2002)
[20].   Darbre PH, Concentration of parabens in human breast tumors. Journal of applied toxicology, 2004, 24(1):5–13.London: Routledge.
[21].   DrDonnica. Breast cancer and antiperspirant use (http://www.drdonnica.com/display.asp?article=2379, accessed on 5th of December 2011)
[22].   Breast Cancer Health Centre. Breast cancer: detecting realities, not myths (http://health.yahoo.com/centers/breast_cancer/104, accessed on 5th of December 2011).
[23].   S. Fakri, A.Al-Azzawi and N. Al-Tawi , antiperspirant use as a risk factor for breast cancer in Iraq, Eastern Meditaranian Health Journal, 2006, 12: (3-4):478-482.
[24].   Irurhe,N., Raji,S., Olowoyeye,O., Arogundade R.: Knowledge and Awareness of Breast Cancer among Female Secondary School Students in NigeriaAcademic Journal of Cancer Research,2012, 5 (1): 01-05
[25].   AlwanNA(1), Al-Attar WM, Eliessa RA, Madfaie ZA, Tawfeeq FN. Knowledge, attitude and practice regarding breast cancer and breast self-examination among a sample of the educated population in Iraq, East Mediterr Health J. 2012 Apr;18(4):337-45
[26].   Dandash KF, Al-Mohaimeed A, Knowledge, Attitudes, and Practices Surrounding Breast Cancer and Screening in Female Teachers of Buraidah, Saudi Arabia, International Journal of Health Science,2007,1:61-71.
[27].   Parsa P, Kandiah M, Breast cancer knowledge, perception and breast self-examination practices among Iranian women, The International Medical Journal, 2005, 4, 2:17-24.