

# Risk Factors of Breast Cancer in Kuwait: Case-Control Study

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## Abstract

**Background:** Breast cancer incidence has increased rapidly in Kuwait, but there haven't been any studies investigating the recognized risk factors of breast cancer in Kuwait. The aim of the study was to investigate breast cancer risk factors among women in Kuwait.

**Methods:** A case-control study was conducted in Kuwait from May 2003 to March 2004 using a questionnaire including socio-demographic data and breast cancer risk factors between two groups of women. Cases were women with confirmed diagnoses of breast cancer within the last 2 years; they were selected from Kuwait Cancer Control Centre (KCCC), controls were women with no history of breast cancer. They were recruited from primary health care centers using random table. The selected age group was women of 30-65. Risk factors that modulate the development of breast cancer assessed in this study were: socio-demographic characteristics, reproductive history, exogenous hormones, and family history of breast cancer.

**Results:** The total participants were 1070, breast cancer cases were 514 (48%) and the controls were 556 (52%), the majority of breast cancer cases were of 40-49 age group, breast cancer risk increased with menopause, recent hormone replacement therapy and family history of breast cancer.

**Conclusion:** This study confirmed a number of recognized risk factors contributing in the development of breast cancer in Kuwait. It revealed that cases of breast cancers were relatively young in age; this should raise the anxiety of health care providers in Kuwait.

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**Keywords** • Risk factor • breast cancer • socio-demographic  
• women • Kuwait

## Introduction

**B**reast cancer is the most frequently diagnosed cancer in women and is one of the most causes of death among them.<sup>1</sup> Several well established risk factors are associated with the development of breast cancer besides being female, age is an important risk factor.<sup>2</sup> Women with family history of breast cancer especially in the first degree relatives (mother, sister, daughter) have an increased risk of breast cancer, the risk is even higher if more than one first degree relative has or had breast cancer.<sup>3</sup> Studies suggest that reproductive hormones influencing breast cancer risk through

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effect on cell proliferation and DNA damage.<sup>4</sup> Recent use of oral contraceptives may slightly increase the risk of breast cancer,<sup>5</sup> however, women who stopped using oral contraceptives for 10 years or more have the same risk as women who have never used the pills.<sup>6</sup> Recent use of Hormone Replacement Therapy (HRT) is revealed to increase the breast cancer risk.<sup>7</sup> It has been noticed that 75% of women with diagnosis of breast cancer have no known risk factor.<sup>8</sup> The incidence and mortality rate of breast cancer suggest that the known risk factors may vary in different parts of the world.<sup>9</sup> The aim of this study was to assess breast cancer risk factors among Kuwaiti women.

### Patients and Methods

This is a case-control study conducted, from May 2003 to March 2004, in Kuwait. The subjects were Kuwaiti women of age 30-65 yrs. A questionnaire was developed by the guidance of Kuwait Cancer Control Centre which is the only cancer specialized center in Kuwait. The questionnaire included the socio-demographic characteristics and recognized breast cancer risk factors as age at menarche, parity, breast feeding, breast biopsy or surgery, menopausal status, menopause was defined as continuous cessation of menstruation for at least six months,

reasons other than breast problems. Nine health centers reflecting all Kuwait governorates were selected randomly using the random table. All participants were asked to complete the questionnaire independently. Women with hysterectomy and artificial menopause were excluded from the study. The returned response rates for controls and cases were 89% and 83% respectively.

### Statistical analysis

Data were analyzed using binary logistic regression analysis to calculate adjusted odds ratios (ORs) for the confounding between risk factors. Dependent variables used for controls and cases were zero and one respectively and independent variables were risk factors.  $P < 0.05$  was taken as the cut-off level for statistical significance.

### Results

A total of 1070 women completed the questionnaire, 514 (48%) were cases and 556 (52%) were controls. The present study stated that 20% of breast cancer cases were in the 30-39 age groups. Table 1 shows the risk of breast cancer in relation with socio-demographic characteristics and Table 2 shows the prevalence of studied breast cancer risk factors among cases and controls.

**Table 1:** Socio-demographic characteristics of cases and controls (CN)

	Case n (%)	CN n (%)	OR (95% CI)	P value
<b>Age (yr)</b>				
30-39	103 (20)	257(46)	--	--
40-49	220 (43)	186(33)	2.95 (2.1,3.99)	<0.001
≥50	191 (37)	113 (20)	4.22 (3.04,5.84)	<0.001
<b>Education</b>				
Illiterate	118 (23)	50 (9)	4.24 (2.85,6.29)	<0.001
Primary	123 (24)	64 (11)	3.45 (2.38,5.00)	<0.001
Secondary	146 (28)	154 (28)	1.70 (1.24,2.33)	0.000
University	127 (25)	288 (52)	--	--
<b>Marital status</b>				
N Married	57 (11)	67 (12)	--	--
Married	390 (76)	440 (79)	1.04 (0.71,1.52)	NS
Widowed	67 (13)	49 (9)	1.61 (0.96,2.68)	NS

OR= Adjusted odds ratio; N Married= never married; NS= Not statistically significant

continuous use of oral contraception for the past five years, use of HRT for more than five yrs, and family history of breast cancer in mother, sister or daughter. The cases were women with the selected criteria and confirmed diagnosis of breast cancer within the past two yrs coming to the KCCC for the management and follow-up.

Control individuals were healthy women recruited from primary health care centers with the same criteria used for case selection but had no history of breast cancer. They were visiting the primary Health Centers for

### Discussion

In this study we noticed that in Kuwait, breast cancer patients were relatively young in age, this result was supported by the results of other studies.<sup>2,9</sup> The cause of breast cancer in young women in Kuwait is not well known, and it requests the concern of health providers. The risk of breast cancer was increased with menopause which was similar to the results of a study performed in Iran.<sup>9</sup> Regarding to the association between breast feeding and the subsequent risk of breast cancer, the risk was

**Table 2:** Risk factors among cases and controls (CN)

	Case n (%)	CN n (%)	OR(95% CI)	P value
<b>Age at menarche (year)</b>				
≤ 12	197(38)	223 (40)	--	--
13-14	252 (49)	266 (48)	1.07 (0.83,1.39)	NS
≥15	65 (13)	67 (12)	1.10 (0.74,1.62)	NS
<b>Parity</b>				
Parious	437 (85)	456 (82)	--	--
Nulliparous	77 (15)	100 (18)	0.80 (0.58,1.11)	NS
<b>Age at first full term pregnancy</b>				
<20	206 (40)	177 (32)	--	--
20-29	198 (39)	263 (47)	1.55 (1.18,2.03)	0.01
≥30	35 (7)	17 (3)	1.77 (0.96,3.27)	NS
<b>Breast-feeding</b>				
Always	313 (61)	399 (72)	--	--
Never	210 (39)	157 (28)	2.82 (1.97,4.05)	<0.01
<b>Menopausal status</b>				
Pre-menopause	254 (49)	456 (82)	--	--
Menopause	260 (51)	100 (18)	4.67 (3.54,6.16)	<0.01
<b>History of abortions</b>				
No	294 (57)	351 (63)	--	--
Yes	220 (43)	205 (37)	1.28 (1.00,1.64)	0.047
<b>History of breast biopsy or surgery</b>				
No	466 (91)	526 (95)	--	--
Yes	48 (9)	30(5.3)	1.81(1.13,2.90)	0.01
<b>History of contraceptive pills use</b>				
No	230 (45)	275(49)	--	--
Yes	284 (55)	281(51)	0.83 (0.65,1.05)	NS
<b>History of HRT</b>				
No	474 (92)	537 (96)	--	--
Yes	40 (8)	19 (3)	2.39 (1.36,4.18)	0.01
<b>Family history of breast cancer</b>				
No	387 (75)	454 (82)	--	--
Yes	127(24.7)	102 (18)	1.46 (1.09,1.96)	0.01

OR= adjusted odds ratio; NS= not significant. Numbers may not add to the total due to Never pregnant

less amongst lactating women. This result was consistent with the reports of another study showing that breast feeding may be protective for breast cancer.<sup>10</sup>

The risk of breast cancer was increased in women receiving HRT. This finding was in accord with the results of Nkondjock and colleagues showing that HRT increased the risk of breast cancer, particularly with the use of combined estrogen and progesterone.<sup>11</sup>

Family history of breast cancer, in the first-degree relatives, was reasonably associated with the elevation of its risk, which was similar to the results of other studies.<sup>12</sup> Similar to the results of other studies, the history of breast surgery or biopsy was well associated with the higher risk of breast cancer.<sup>13</sup> This finding could be explained by the fact that women with the diagnosed benign breast lesions had 1.5 to 3 times were in the higher risk of developing breast cancer than women having non of these changes.<sup>11</sup> Women who had history of abortions also had more risk of developing breast cancer. This finding was supported with the results of Andrieu et al.<sup>14</sup>

There was no difference between the cases and controls regarding to the use of oral contraception, which was similar to the reports of Claus et al,<sup>15</sup> but in opposition to the results of

Kumle and colleagues who indicated a mild increase in the risk of breast cancer among women using oral contraception.<sup>5</sup> This discrepancy possibly remains in the direction and the magnitude of the effects of oral contraceptives on the risk of breast cancer.<sup>10</sup>

Similar to other studies, cigarette smoking has not been consistently associated with the increased risk of breast cancer.<sup>10</sup> The lack of significant association between breast cancer and other variables studied was unexpected as age at menarche, nulliparity and marital status.

## Conclusion

The findings suggest the association between some recognized risk factors and breast cancer. We recommend primary care physicians to increase their awareness and knowledge regarding breast cancer risk factors and encourage them to get their responsibility in health promotion and prevention to reduce mortality and disease burden due to breast cancer.

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