RESULTS

Table (1): Distribution of breast cancer patients according to the site of tumor.

Site of the tumors	No of cases	Percent
Right breast	85	47.22
Left breast	71	39.45
Bilateral	24	13.33
Total	180	100.00

It is clearly evident from this table that the tumor commonly affected the right breast (47.22%) while the left breast was affected in 39.45% of cases. Only 13.33% of cases suffering from bilateral affection.

Table (2) : Distribution of cases and control according to the age.

Age groups in years.	Cases		Controls		Total	
	No	%	No	%	No	%
30 -	38	43.68	49	56.32	87	100.00
40 -	57	51.82	53	48.18	110	100.00
50 -	61	56.48	47	43.52	108	100.00
60 -	24	35.82	43	64.18	67	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 8.74 P > 0.05

This table shows that the occurrence of cancer breast increased progressively with age and reached maximum percentage in the age group 50 - 60 years (56.48%). At the age of 60 years or more, the percentage of cases declined to 35.82%. The difference between cases and controls regarding age is statistically insignificant.

Fig. (1) :

Distribution of Breast Cancer cases according to site of tumor

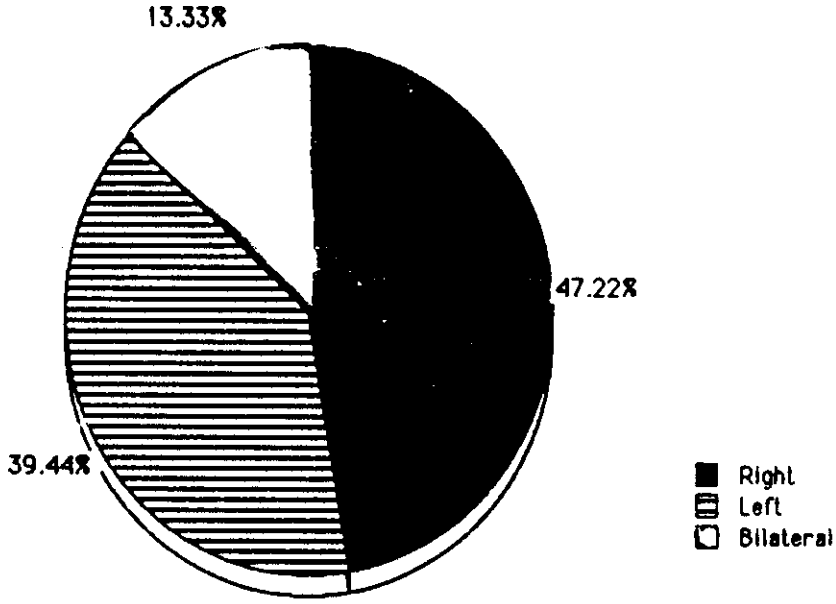

Fig. (2)

Distribution of ases and Controls according to Age.

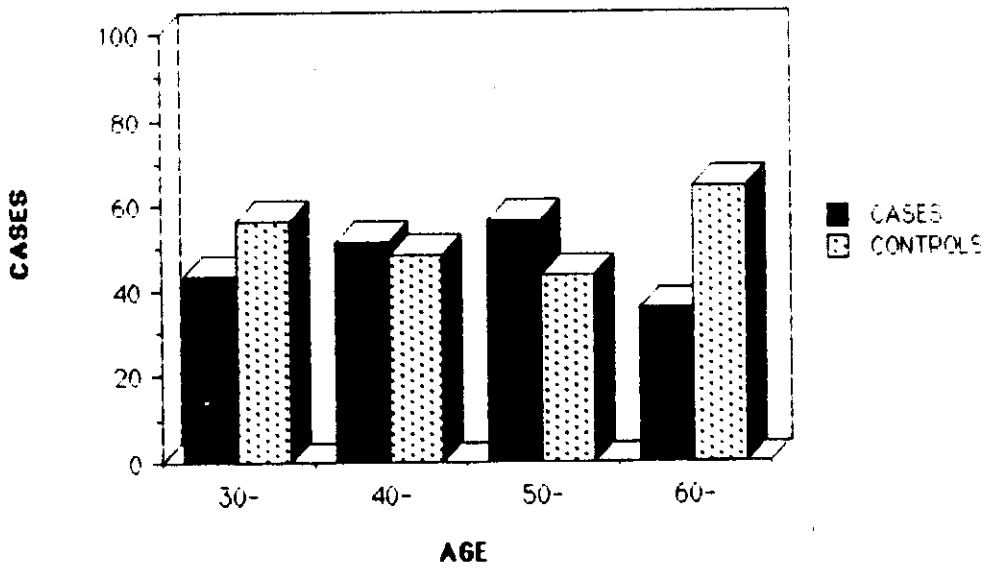

Table (3) : Number and percentage distribution of cases according to the age at discovery of cancer breast.

Age groups at discovery	Number	Percentage
< 30	17	9.44
30 -	51	28.33
40 -	62	34.45
50 -	43	23.89
60 +	7	3.89
Total	180	100.00

This table shows that 34.45% of cases discovered the disease between 40 - 50 years while the lower percentage of cases discovered the disease before age of 30 years and after 60 years (9.44% and 3.89% respectively).

Table (4) : Distribution of cases and controls according to the age of menarche.

Age of menarche	Cases		Controls		Total	
	No	%	No	%	No	%
< 12 -	19	65.52	10	34.48	29	100.00
12 -	33	61.11	21	38.89	54	100.00
13 -	58	61.05	37	38.95	95	100.00
14 -	27	38.57	43	61.43	70	100.00
15 -	18	27.69	47	72.31	65	100.00
16 +	25	42.37	34	57.63	59	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 29.38 P > 0.05

This table shows that the percentage of occurrence of cancer breast is more common among women with early age of menarche (Below 12 years) being 65.52%. The percentage after that decreased with increasing the age of menarche with the least value in the group 15-16 years (27.69%). The difference is statistically insignificant.

Fig. (3)

Distribution of Cases and Controls according to Age of Menarche.

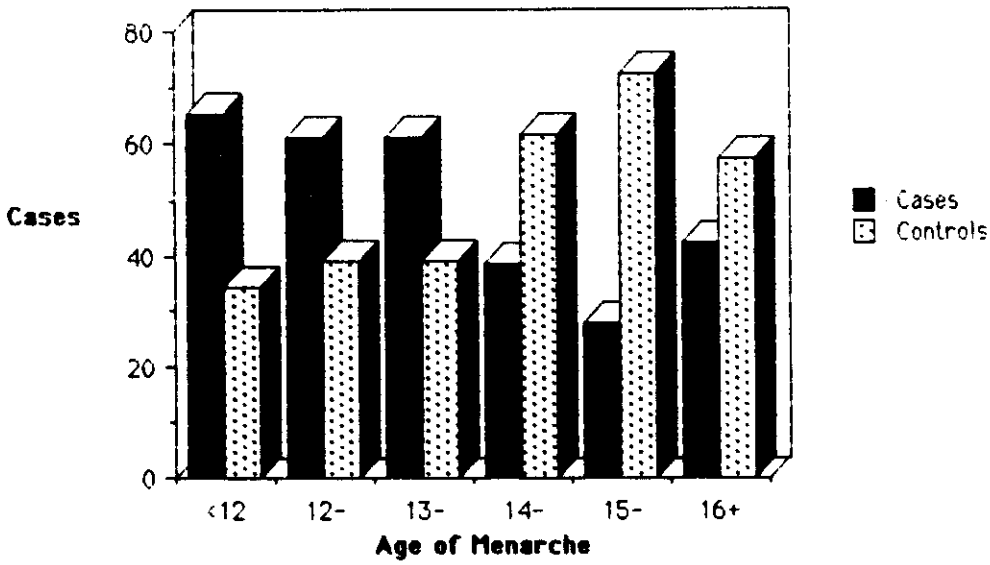

Table (5) : Distribution of cases and controls according to duration of menstrual flow.

Duration of menst flow in days.	Cases		Controls		Total	
	No	%	No	%	No	%
3 -	34	39.53	52	60.47	86	100.00
4 -	47	41.59	66	58.41	113	100.00
5 -	37	53.62	32	49.38	69	100.00
6 -	26	56.52	20	43.48	46	100.00
7 +	36	62.07	22	37.93	58	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 11.18 $P < 0.05$

This table clearly shows that the prevalence of cancer breast increased with increase in the duration of menstrual flow. The highest percentage was in the last group with 7 days or more duration of menstrual flow (62.07%). The difference between both cases and controls is statistically significant.

Table (6) : Distribution of cases and controls according to pattern of menstruation.

Regularity of menstruation	Cases		Controls		Total	
	No	%	No	%	No	%
Regular	163	51.10	156	48.90	319	100.00
Irregular	17	32.08	36	67.92	52	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 3.34 P > 0.05

It is clearly evident from this table that 51.1% of cases had regular menstruation while 32.08% had irregular menstruation. On the other hand, irregular menstruation occurred more frequently among controls (67.92%). This difference was statistically insignificant.

Table (7) : Distribution of cases and controls according to type of menopause.

Type of menopause.	Cases		Controls		Total	
	No	%	No	%	No	%
Natural	108	46.75	123	53.25	231	100.00
Artificial	14	82.35	3	17.65	17	100.00
Total	* 122	49.19	** 126	50.81	248	100.00

X2 = 8.03 P < 0.05

This table shows that the artificial menopause is more common among cases than among controls (82.35% and 17.65% respectively). This difference is statistically significant.

* Cases still menstruated = 58

** Controls still menstruated = 66

Table (8) : Mean and standard deviation of age of the natural menopause and duration of natural menstrual life for both cases and controls.

Variable	Cases			Controls			t test	p
	No	$\bar{X}$	SD	No	$\bar{X}$	SD		
Age at natural menopause	100	48.04	2.887	123	44.79	2.686	8.66	>0.05
Duration of natural menstrual life	100	34.26	3.381	123	31.18	3.046	7.15	>0.05

This table shows that the mean age of natural menopause among cases was 48.04±2.887 years while among controls 44.79 ±2.686 years. This difference is statistically insignificant.

Also this table shows that the duration of natural menstrual life among cases is longer than among controls being 34.26±3.381 years and 31.18±3.046 years respectively. Also, this difference is statistically insignificant.

Table (9) : Odd's ratio of different reproductive variable of both cases and controls.

Variable	No.of cases	No.of controls	Odd's ratio
Age of menarche			
< 12 years	19	10	2.1
> 12 years	161	182	95% cl (0.92,5.12)
Duration of menstrual flow			
> 4 days	146	140	1.6
< 4 days	34	52	95% cl (1.37,3.05)
Pattern of menstruation			
Regular	163	156	2.2
Irregular	17	36	95% cl (1.51,4.3)
Type of menopause			
Artificial	14	3	5.3
Natural	108	123	95% cl (3.8, 7.3)

Table (10): Distribution of cases and controls according to marital status.

Marital status	Cases		Controls		Total	
	No	%	No	%	No	%
Single	12	70.59	5	29.41	17	100.00
Married	121	46.01	142	53.99	263	100.00
Widowed	39	53.42	34	46.58	73	100.00
Divorced	8	42.11	11	57.89	19	100.00
Total	180	48.39	192	51.61	372	100.00

$X2 = 4.99$ $P > 0.05$

It is clearly evident from this table that the highest percentage of cancer breast occurred among single women (70.59%) followed by the widowed women (53.42%) then married women (46.01%), while the divorced women have the least percentage (42.11). The difference between both groups is statistically insignificant.

Fig. (4)

Distribution of Cases and Controls according to the Marital Status.

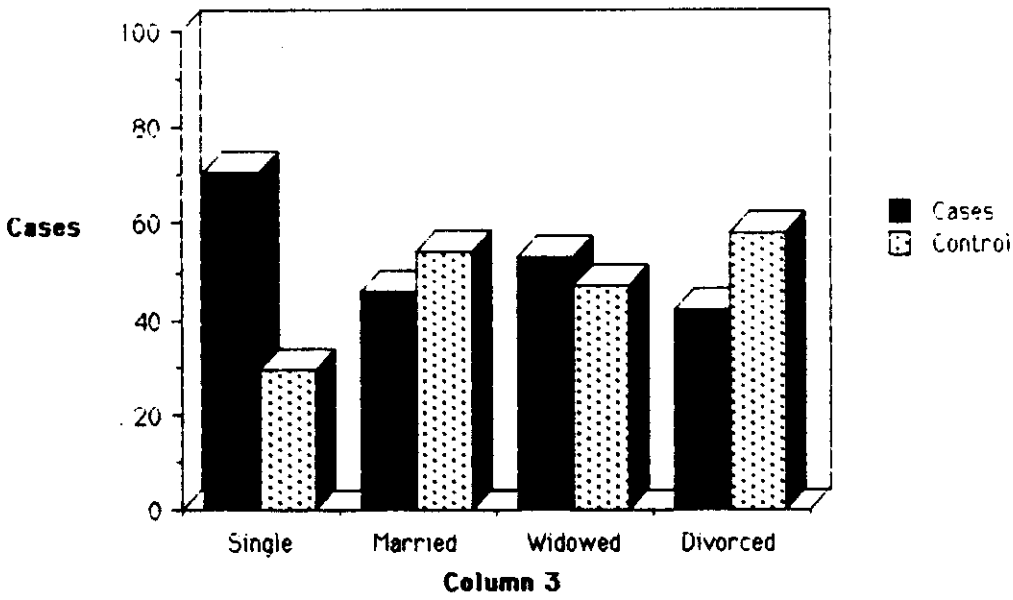

Table (11): Number and percentage distribution of cases and controls according to the "age of marriage".

Age of marriage	Cases		Controls		Total	
	No	%	No	%	No	%
< 20	55	37.67	91	62.33	146	100.00
20 -	37	48.68	39	51.32	76	100.00
25 -	35	57.38	26	42.62	61	100.00
30 +	41	56.94	31	43.06	72	100.00
Total	168	47.32	187	52.68	355	100.00

X2 = 14.56 P < 0.05

This table shows that the percentage of cancer breast increased with the increase of the age of marriage. The highest percentage was found in women married at age of 25-30 and 30 years or more being 57.38% and 56.94% respectively, while women married before age of 20 years have the least percentage of cancer breast (37.67%). The difference between cases and controls as regards age of marriage is statistically significant.

Table (12) Distribution of cases and controls according to history of pregnancy.

History of pregnancy	Cases		Controls		Total	
	No	%	No	%	No	%
Pregnant	144	45.14	175	53.86	319	100.00
Never Pregnant	24	66.67	12	33.33	36	100.00
Total	168 *	47.32	187 **	52.68	355	100.00

X2 = 6.01 P < 0.05

It is evident from this table that women who were never pregnant have the highest percentage of breast cancer than women with pregnancies being 66.67% and 45.14% respectively. This difference is statistically significant.

* Single cases = 12

** Single controls = 5

Fig. (5)

Distribution of Cases and Control according to History of Pregnancy.

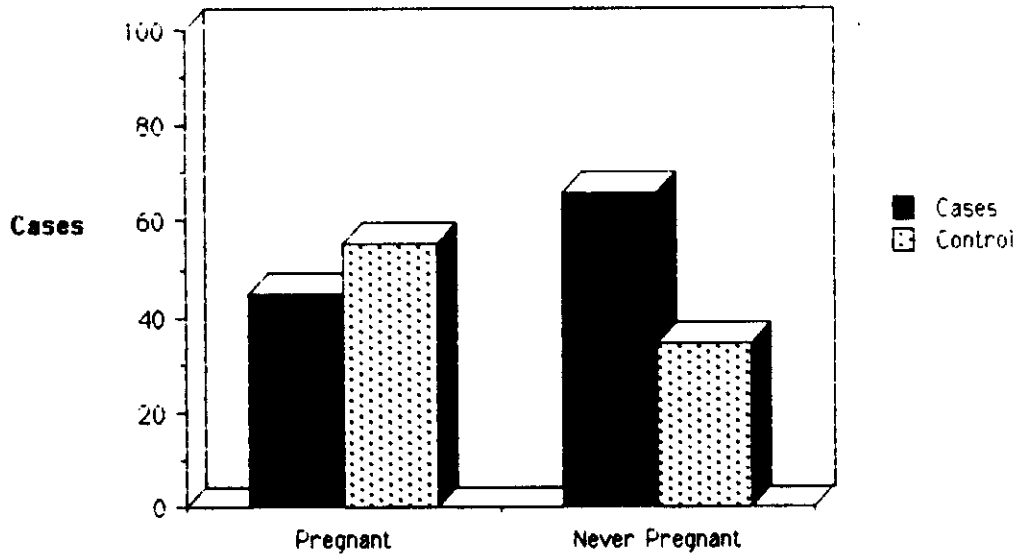

Table (13) : Number and percentage distribution of cases and controls according to the "age at first birth".

Age at first birth	Cases		Controls		Total	
	No	%	No	%	No	%
15 -	29	26.85	79	73.15	108	100.00
20 -	37	51.39	35	48.61	72	100.00
25 -	41	54.67	34	45.33	75	100.00
30 +	37	57.81	27	42.19	64	100.00
Total	144	45.14	175	54.86	319	100.00

X2 = 24.87 P < 0.05

This table shows that the percentage of cancer breast increased with the increase of the age at first birth to reach maximum percentage among women who had their first birth at age of 30 years and over (57.81%) while the least percentage was found among women who had their first birth early at age of 15-20 years (26.85%). Statistically this difference between both cases and controls is significant.

Fig. (6)

Distribution of Cases and Control according to age at first birth.

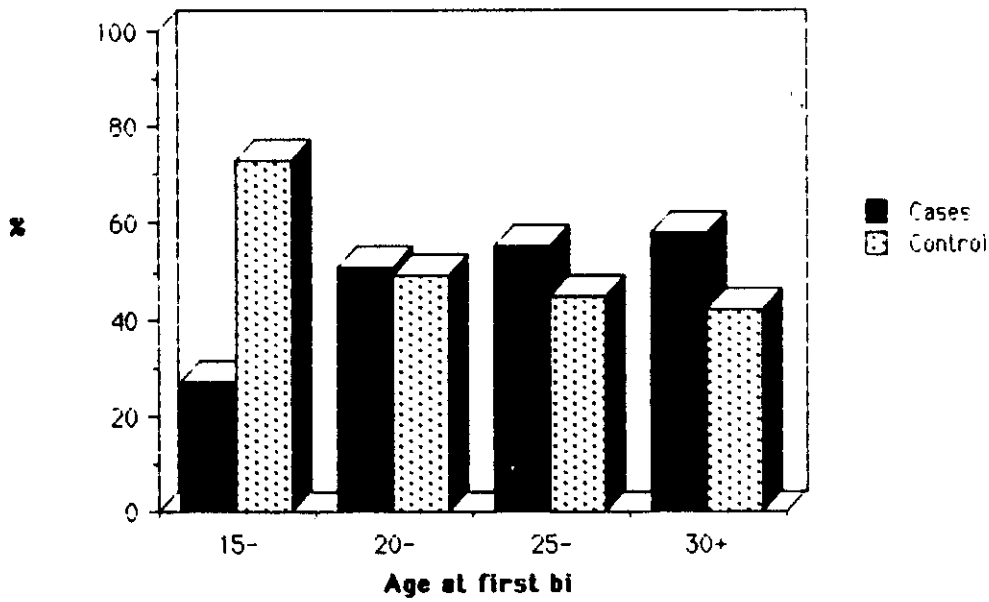

Table (14) : Distribution of cases and controls according to "the number of pregnancies.

Number of pregnancies	Cases		Controls		Total	
	No	%	No	%	No	%
1 -	41	47.67	45	52.33	86	100.00
3 -	55	39.86	83	60.14	138	100.00
5 -	27	48.21	29	51.79	56	100.00
7 +	21	53.85	18	46.15	39	100.00
Total	144	45.14	175	54.86	319	100.00

$X2 = 7.82$ $P < 0.05$

This table shows that cancer breast occurred more commonly among women with large number of pregnancies (7 and over) the percentage being 53.85% while women pregnant 1-3 or 3-5 times have the lowest percentage (47.67% and 39.86% respectively). The difference is statistically significant.

Table (15): Distribution of cases and controls according to "History of abortion".

History of abortion	Cases		Controls		Total	
	No	%	No	%	No	%
Aborted	68	58.62	48	41.38	116	100.00
Never aborted	76	37.44	127	62.56	203	100.00
Total	144	45.14	175	54.86	319	100.00

X2 = 13.79 P < 0.05

O.R. = 2.367

It is clearly evident from this table that the number and percentage of cases were more among women who previously aborted than among who never aborted being 58.62% and 37.44% respectively. This difference is statistically significant.

Table (16): Distribution of cases and controls according to the number of abortions.

Number of abortion	Cases		Controls		Total	
	No.	%	No.	%	No.	%
1-	29	55.77	23	44.23	52	100.00
2-	18	56.25	14	43.75	32	100.00
3-	12	63.16	7	36.84	19	100.00
4+	9	69.23	4	30.76	13	100.00
Total	68	58.62	48	41.38	116	100.00

$X2 = 16.21$ $P. < 0.05$

This table shows that the percentage of cancer breast increased with increasing the number of abortions. The cases were more prevalent among women who aborted 4 times or more while the least percentage of cases wer among women who aborted once only (69.23% and 55.77% respectively). This difference is statistically significant.

Table (17) : Number and percentage distribution of cases and controls according to "use of oral contraceptive pills".

Use of contraceptive pills	Cases		Controls		Total	
	No	%	No	%	No	%
User	44	45.36	53	54.64	97	100.00
Non user	136	49.45	139	50.55	275	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 0.481 P > 0.05

This table shows that cancer breast occurred more commonly among cases who never used oral contraceptive pills than among pills users, the percentage being 49.45% and 45.36% respectively.

The difference between cases and controls is statistically insignificant.

Fig. (7)

Distribution of Cases and Controls according to Use of Oral Contraceptive Pills.

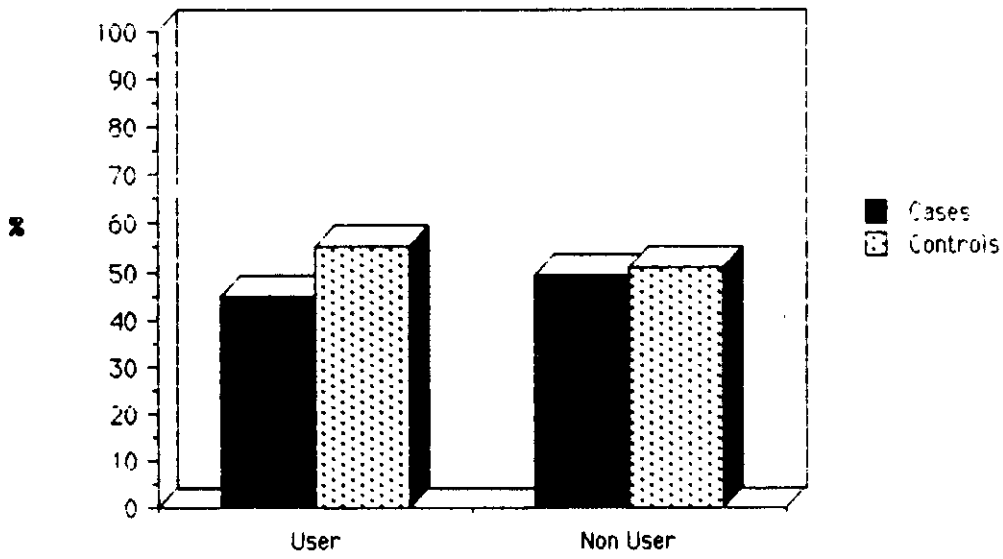

Table (18): Distribution of cases and controls according to duration of pills intake.

Duration of pills intake in years	Cases		Controls		Total	
	No	%	No	%	No	%
2 -	20	48.78	21	51.22	41	100.00
4 -	12	37.50	20	62.5	32	100.00
6 -	6	40.0	9	60.0	15	100.00
8 +	6	66.67	3	33.33	9	100.00
Total	44	45.36	53	54.64	97	100.00

X2 = 2.81 P > 0.05

It is clearly evident from this table that the highest percentage of cancer breast was found among women use pills for 8 years or more while the least percentage was among women using pills for 4-6 years (66.67% and 37.5% respectively). This difference is statistically insignificant.

Table (19) : Odd's ratio of different conceptional and interconceptional variables for both cases and control.

Variable	No of case	No of controls	Odd's ratio
Martial status			
Single	12	5	2.7
Married	168	187	95% cl (0.85,8.89)
Age of marriage			
>30Y	41	31	2.1
≤20Y	55	91	95% cl (1.25, 4.84)
Parity			
Never preg.	24	12	2.4
Preg.	144	175	95% cl (1.19,4.90)
Age at first birth			
> 30 Y	37	27	3.7
≤ 20Y	29	79	95% cl (2.13,5.54)
Number of pregnancies			
> 5	48	47	1.4
≤ 5	96	128	95% cl (0.88,2.44)
History of abortion			
Aborted	68	48	2.3
Never aborted	76	127	95% cl (1.45,3.88)
Oral contraceptive intake			
Non user	136	139	1.2
user	44	53	95%cl (0.52,2.39)

Table (20): Distribution of cases and controls according to patients occupation.

Patients occupation	Cases		Controls		Total	
	No	%	No	%	No	%
Working	32	71.11	13	28.89	45	100.00
Not working	148	45.26	179	54.74	327	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 15.66 P < 0.05

Odd's ratio 2.9 (95% confidence limits 1.82, 4.13).

This table indicates that cases were more likely to be in working group than controls (71.11% and 28.89% respectively). This difference is statistically significant.

Table (21): Distribution of cases and controls according to family size.

Family size	Cases		Controls		Total	
	No	%	No	%	No	%
1 -	32	58.18	23	41.82	55	100.00
3 -	78	54.17	66	45.83	144	100.00
5 +	70	40.46	103	59.54	173	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 29.47 P < 0.05

This table indicates that cancer breast was more common among cases with small families (1-3 persons than among cases with big families (5 persons or more) the percentage being 58.18 % and 40.46% respectively. This difference is statistically significant.

Table (22) : Distribution of cases and controls according to crowding index.

Crowsing index*	Cases		Controls		Total	
	No	%	No	%	No	%
< 2	49	55.68	39	44.32	88	100.00
2 -	97	51.32	92	48.68	189	100.00
4 -	26	38.24	42	61.76	68	100.00
6 +	8	29.63	19	70.37	27	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 13.07 P > 0.05

This table indicates that cancer breast was more likely to occur among women with low crowding index (below 2) than among women with high crowding index (6 or more) with percentage of 55.68% and 29.63% respectively. This difference is not significant statistically.

* Crowding index was calculated as family size divided by number of rooms.

Table (23) : Percentage distribution of cases and controls according to per family income/month.

Per family income / M.	Cases		Controls		Total	
	No	%	No	%	No	%
70 -	119	47.6	131	52.4	250	100.00
100 -	40	49.38	41	50.62	81	100.00
130 -	21	51.22	20	48.78	41	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 4.76 P > 0.05

This table shows that cancer breast developed more among cases with monthly perfamily income 130 pounds or over (51.22%) while the lower percentage of the disease occurred among cases with monthly perfamily income 70-100 pounds (47.6%). The difference between both groups is statistically insignificant.

Table (24): Distribution of cases and controls according to exposure to diagnostic X-ray.

Exposure to X - ray	Cases		Controls		Total	
	No	%	No	%	No	%
Yes	26	74.29	9	25.71	35	100.00
No	154	45.70	183	54.30	337	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 10.38 P < 0.05

Odd's ratio = 3.4 (95% confidence limits 2.17, 5.13).

This table clearly shown that cancer breast occurred more commonly among previously exposed women to X-ray than among controls (74.29% and 45.70% respectively). Regarding age at exposure to radiation,it is clearly evident from table (26) that the disease occurred more in women exposed to radiation early in their life (35.31 $\pm$ 10.532) than in women exposed later on (48 $\pm$ 3.071). This difference between both groups is statistically significant.

Fig. (8)

Distribution of Cases and Controls according to Exposure to Radiation

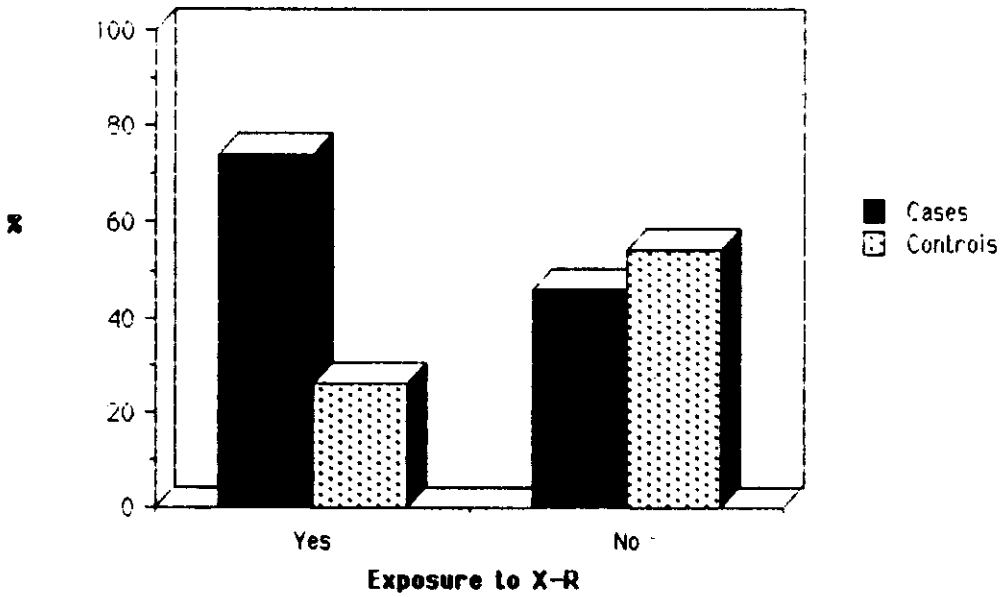

Table (25): Mean and standard deviation of age at X-ray exposure among cases and controls.

	Age at X-ray exposure			t test	P
	No	$\bar{X}$	SD		
Cases	26	35.3	10.532	5.12	< 0.05
Controls	9	48.0	3.071		

Table (26) : Distribution of cases and controls according to family history of cancer breast.

Family history of cancer breast	Cases		Controls		Total	
	No	%	No	%	No	%
Positive history	39	82.98	8	17.02	47	100.00
Negative history	141	43.38	184	56.62	325	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 25.78 P < 0.05

Odd's ratio = 6.36 (95% confidence limits 4.87, 7.53).

It is clearly evident from this table that cancer breast was more common among the group of women with positive family history of cancer breast than among those with negative family history (82.98% and 43.38% respectively). The difference between both groups is statistically significant.

Fig. (9)

Distribution of Cases and Controls according to Family History of Cancer Breast.

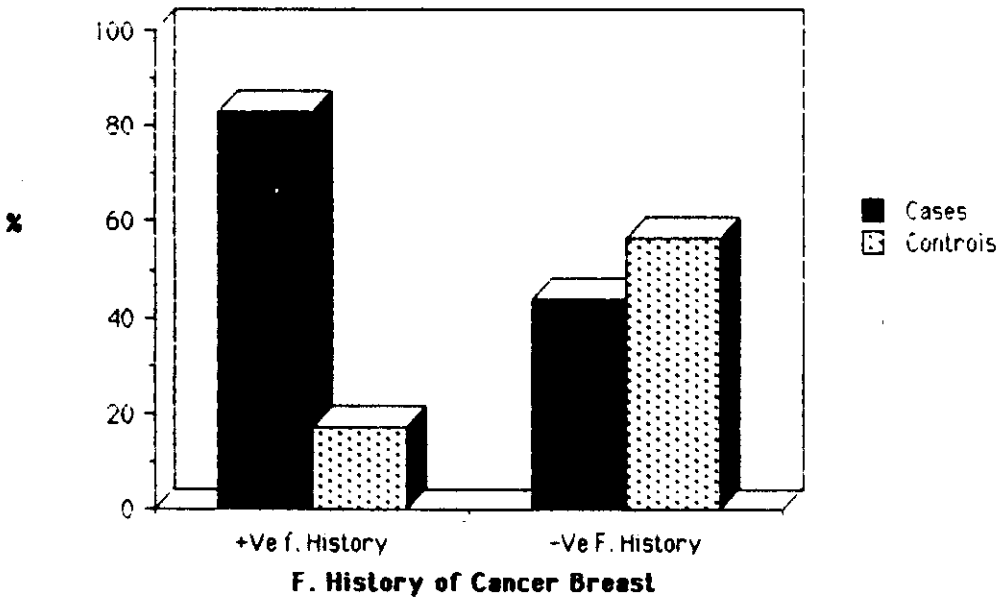

Table (27) : Distribution of cases and controls according to exposure to psychological trauma.

Exposure to psy trauma	Cases		Controls		Total	
	No	%	No	%	No	%
Positive history	43	52.44	39	47.56	82	100.00
Negative history	137	47.24	153	52.76	290	100.00
Total	180	48.39	192	51.61	372	100.00

X2 = 0.69 P > 0.05

It is clearly evident from this tables that the percentage of occurrence of cancer breast was more among women with positive history of exposure to psychological trauma than in women with negative history (52.44% and 47.24% respectively) As regards type of psychological trauma, table no 27 shows that the disease occurred commonly among women with finantial and family troubles (77.78% and 65.38% respectively) than in women with history of death or illness of dear person (43.48% and 37.5% respectively). The difference between both groups is statistically insignificant.

Table (28) : Distribution of cases and controls according to the type of psychological trauma.

Type of psy. trauma	Cases		Controls		Total	
	No	%	No	%	No	%
Family troubles	17	65.38	9	34.62	26	100.00
Death of dear person	10	43.48	13	56.52	23	100.00
Illness of Dear person	9	37.5	15	62.52	24	100.00
Financial Troubles	7	77.78	2	22.22	9	100.00
Total	43	52.44	39	47.56	82	100.00

X2 = 6.95 P > 0.05

Table (29): Mean, standard deviation and t-test of weight, height and body mass among cases and controls.

Variable	Cases			Control			t-test	P
	No.	$\bar{X}$	SD	No.	$\bar{X}$	SD		
Weight (kgm)	180	80.956	12.637	192	76.786	10.642	3.177	<0.01
Height (cm)	180	172.24	6.61	192	168.88	5.19	2.931	<0.05
* Body mass index	180	27.7	2.357	192	27.1	1.972	0.197	>0.05

* Body mass index = weight (kilograms)-square height (meters) (Levy and Fienlieb, 1984).

This table shows that the cases of cancer breast were significantly heavier than controls being 80.956 $\pm$ 12.637 and 76.786 $\pm$ 10.642 respectively : Also as regard height, the cases was found significantly taller than controls (172.24 $\pm$ 6.61 and 168.88 $\pm$ 5.19 respectively) regarding body mass index there is no significant difference between both cases and controls.

Tabe (30): Step-wise regression analysis of different variables in relation to cancer breast.

Serial No	Variables	Partial F test	P value
1	Parity	59.45	< 0.05
2	Age at first birth	49.12	< 0.05
3	Age of menarche	42.98	< 0.05
4	Age of the patient	36.90	< 0.05
5	Family history	27.34	< 0.05
6	Number of pregnancies	20.09	< 0.05
7	Age of natural menopause.	15.19	< 0.05

This table shows the results of the forward step - wise regression analysis between the different risk factors and the development of cancer breast taking in consideration the occurrence of cancer breast as the dependent variable for the regression equation. The most effective risk factor was parity then age at first birth, age of menarche, age of the patient, family history, number of pregnancies and age of natural menopause. Each of these factors was found statistically significant in presence of the other factors.

Table (31): Correlation coefficient (r) between age at discovery and different risk factors of cancer breast.

Risk factors	r	P
Age of menopause	Ø.629	< Ø.ØØ1
Duration of menstrual life	Ø.588	< Ø.Ø1
Per family income / month	- Ø.413	< Ø.Ø5
Age of marriage	Ø.256	< Ø.Ø5
Crowding index	Ø.2Ø9	< Ø.Ø5
Age of menarche	Ø.196	> Ø.Ø5
Age at first birth	Ø.Ø98	> Ø.Ø5
Number of pregnancies	Ø.Ø97	> Ø.Ø5
Duration of menstrual cycle	- Ø.Ø8	> Ø.Ø5
Body mass index	Ø.Ø17	> Ø.Ø5

This table shows that there was a positive and significant correlation between age at discovery of cancer breast and age of menopause, duration of menstrual life, age of marriage and crowding index while the correlation with per family income per month was significantly negative. The correlation between the age at discovery and other risk factors was not significant.

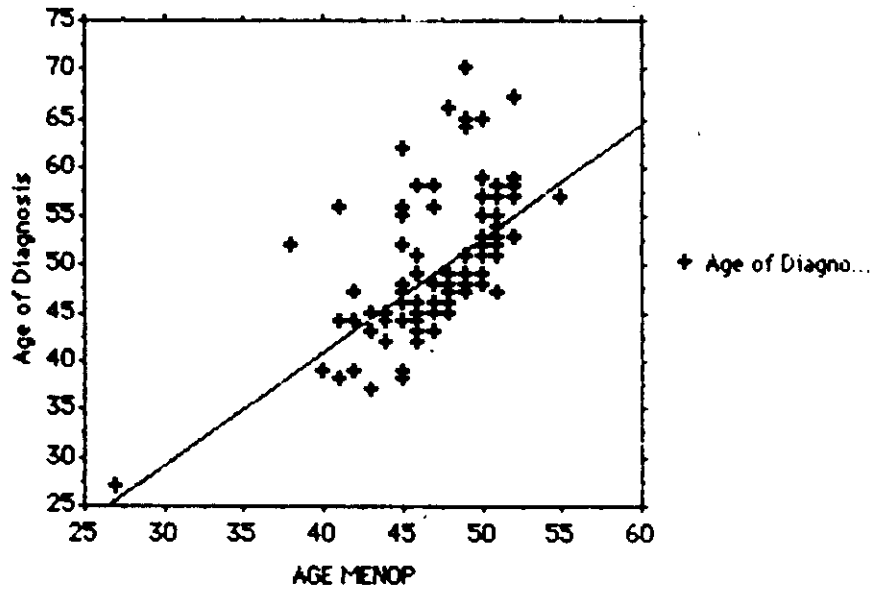

Fig. (10) : Correlation between age of menopause and age at discovery of cancer breast.

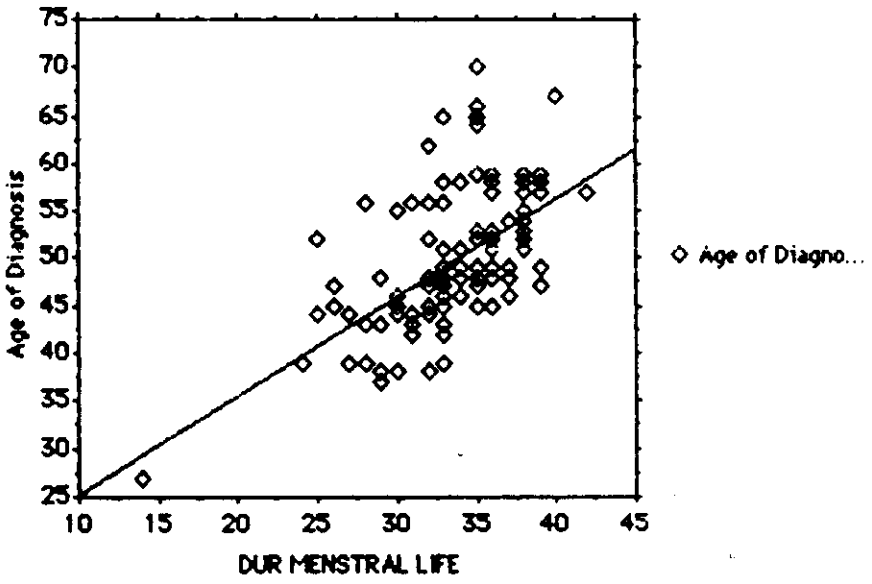

Fig. (11) : Correlation between duration of menstrual life and age at discovery of cancer breast.

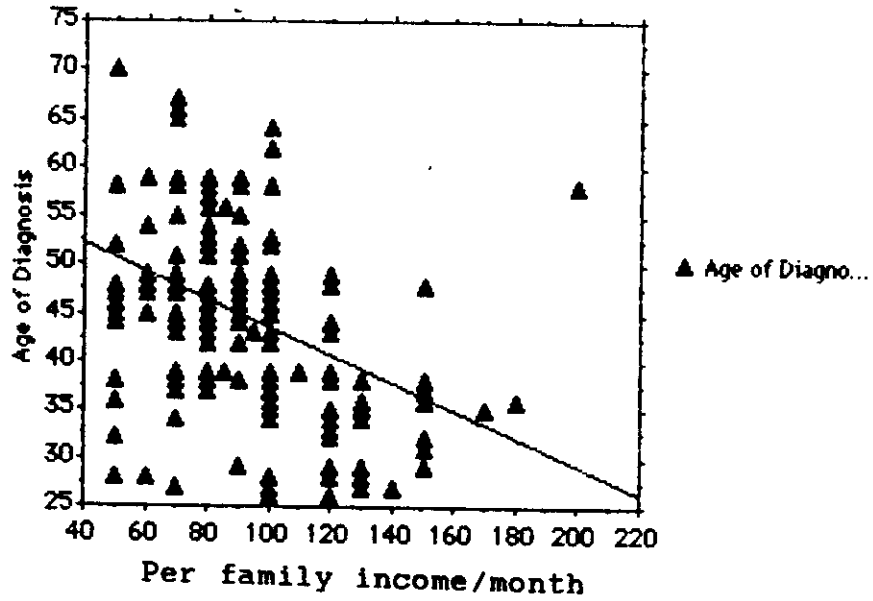

Fig. (12) : Correlation between perfamily income per month and age at discovery of cancer breast.

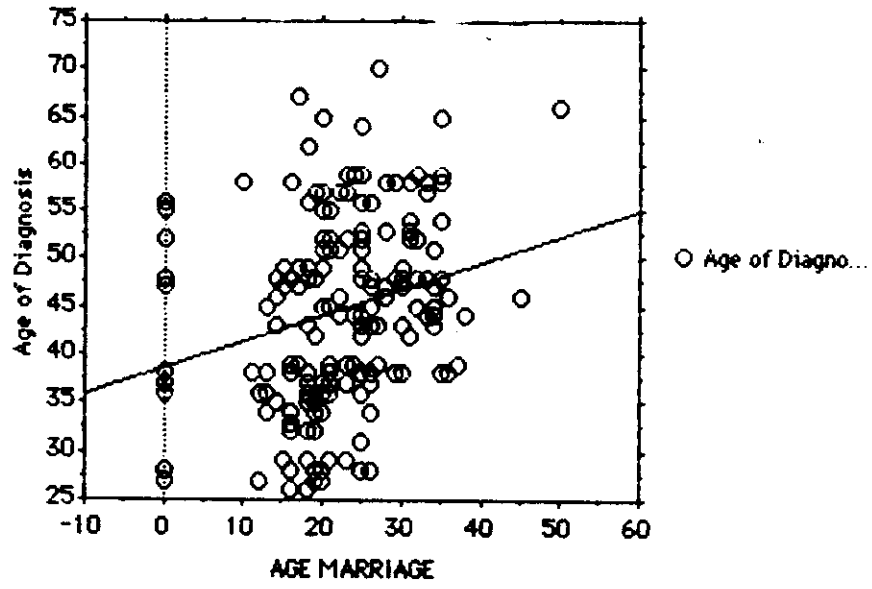

Fig. (13) : Correlation between age of marriage and age at discovery of cancer breast.

Table (32): Multiple regression analysis of age at discovery in relation to some risk factors of cancer breast.

Serial No	Variables	Partial F test	P value
1	Age of menopause	6.829	< Ø.Ø1
2	Age of menarche	4.728	< Ø.Ø5
3	Duration of menst life.	4.67	< Ø.Ø5
4	Age of marriage	3.875	< Ø.Ø5
5	Number of pregnancies	3.471	> Ø.Ø5
6	Age at first birth	1.755	> Ø.Ø5
7	Duration of menst cycle.	Ø.176	> Ø.Ø5

This table shows that the age of menopause, age of menarche, duration of menstrual life and age of marriage were the most important risk factors affecting the age at dicovery of cancer breast, with statistical singificance, while number of pregnancies, age at first birth and duration of menstrual cycle were less effective risk factors.