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Factors associated Breast Cancer among Women Aged 40 years and above in Great Wad Medani Locality Gezira state, Sudan (2016-2022)

[1] Sawsan Omer Fadul FadelElsid, [2] Magda Elhadi Ahmed Yousif, [3]Dafaa Allah Omer Abuedris,[4]Abdalgadir.O.M.

[1] MBBS, University of Gezira Master,

[2] Professor, Community Medicine, University of Gezira.

[3] Professor, Radiological Diagnostic department of the National cancer institute for molecular Medicine University of Gezira.

[4] PhD, Public health consultant.

Corresponding author: Sawsan Omer Fadul FadelElsid

Communicate person: mabdemajed@gmail.com

Background: Breast cancer is the most common cancer among women and one of the most important causes of death among them.

Objectives: This study aimed to determine the factors associated with breast cancer among women in great Wad Medani locality.

Materials and methods: This study was community based cross-sectional interventional descriptive study. The Study area is Sudan, Gezira state, great wad Medani locality**.** The Study subjects were women in Gezira state Great Wad Medani locality aged 40 years and above. The study was include all women above 40 years who agreed to been involved in the study, and excluded women already diagnosed for breast cancer or on treatment.

Results: The findings of this study demonstrated that various risk factors including demographic (age, education level and marital status) , exposure to radiation, contraceptive method, type of contraceptive, breast feeding duration, and number of pregnancies, contribute to the prevalence of breast cancer.

Conclusion: The results of this study indicated there were many factors influence breast cancer prevalence among women, so design and implementation of screening programs and the control of risk factors seem essential.

Keywords: *Factors associated, Breast cancer women, Gezira state, Sudan.*

Introduction:

Breast cancer is one of the major hidden burdens worldwide which develops tumors in the mammary gland and disrupts the usual function of breast tissue. It is the most common cancer in females in more than 150 countries including the developed and developing world. It has mostly been diagnosed among women and a study conducted in the United States showed that women are 100 times more likely to develop breast cancer than men. [1] Globally, 2.1 million females were diagnosed with breast cancer in 2018 [2] and the number was over 2.3 million in 2020, accounting for nearly 11.7% of all new cancer cases worldwide. [3] The World Health Organization (WHO) reported that almost 627,000 women have died of breast cancer which accounted for 15% of total cancers death worldwide in 2018. [4]

Breast cancer is a multifactorial disease5 and various factors contribute to its occurrence. Although the disease occurs all over the world, its incidence, mortality, and survival rates vary considerably among different parts of the world, which could be due to many factors such as population structure, lifestyle, genetic factors, and environment. [5] Changes in risk factors have led to an increase in the prevalence of breast cancer, which is increasing every day. [7] Although screening people can reduce the burden of breast cancer, side effects, over diagnosis, and increased costs are the disadvantages of this method. Classification of women based on risk factors for breast cancer can be effective in improving risk-free methods and designing targeted breast cancer screening programs. [8]

The present study aimed to determine the factors associated with breast can among women aged 40 years and above in great Wad Medani locality.

MATERIALS AND METHODS:

Study design:

Community based Cross-sectional interventional study.

Study area:

Sudan, Gezira state, Great wad Medani locality.

Study subjects:

Women in Gezira state Great Wad Medani locality aged 40 years and above.

Inclusion criteria:

All women above 40 years who agreed to be involved in the study.

Exclusion criteria:

Women already diagnosed for breast cancer or on treatment.

Sample size:

The sample size was calculated according to the following formula;

$$n=Z^2*P*q/\ d^2$$

This has been assigned by simple random method according to this equation:

The primary sample size is n

Prevalence in the community which is 50% is p.

q= is completing to p= (1-p)

Z is the level of accuracy it can be obtained from statistical tables which are the area under the normal curve.

n=384

But the actual number is 328; this due to the constrains accompanied this study (most women were reluctant to do mammogram, mammography machine is exposed many time to be not usable for unavailability of spare parts in addition to loss of two years due to corona outbreak and revolution).

Data collection plan:

Two units out of the six directorial units of great wad Madani locality have been chosen randomly to be the study areas. I depend on women gathering for coffee intake (Jabana). During the sitting I talked about breast cancer and the importance of early detection and early management.in every Jabana sitting regstation of women above forty who were agreed to be included in the research a quetionare was filled,every women was given a card to meet me in (Gezira institue for moleclar medicine) for mamograpfy screening.

All women referred to the National institution for screening by mammography.After screening. The result was interpretated by the radiological especialist, suspected cases confirmsd by Ultrasoud and clssified according to Birad classification. The diagnosed cases referred for further management.

Statistical analysis and interpretation:

Techniques of Data Analysis:

The questionnaires were organized and tabulated and processed by computer; the programme which was used by the researcher was (SPSS). Percentage and tables were used to convey the statistical information, because it is simple for the readers to grasp besides its accuracy and effectiveness.

Ethical considerations

Scientific and ethical approval from the institute directors was ensured. Ethical approval from the ministry of health was taken. Also subject confidentiality was guaranteed and verbal patient consent was taken. The diagnosed cases were referred to oncologists for management.

RESULTS

Table I shows that most of women 32.8% aged between 40-50 years followed by the age group 51-60 years 28.4%. Most of women have secondary education 33.2% and primary education 32.3%. The result shows that 44% of women occupation was housewives. More than have of women tribe 51.8% were North tribe. The majority of women 77.1% were married.

Table 1. Distribution of women according to socio-demographic characteristics

Demographic characteristics	Response	N	%
Age group (years)	40-50	108	32.9
	51-60	93	28.4
	61-70	102	31.1
	71-80	23	7.0
	>80	2	0.6
	Total	**328**	**100.0**
Education level	Khalwa	30	9.1
	Primary school	106	32.3
	Secondary school	109	33.2
	University	68	20.7
	Other	15	4.6
	Total	**328**	**100.0**

Demographic characteristics	Response	N	%
Women occupation	Housewife	144	44.0
	Employee	79	24.0
	Teachers	79	24.0
	Other	26	8.0
	Total	**328**	**100.0**
Tribe	Middle tribe	100	30.5
	North tribe	170	51.8

	East tribe	14	4.3
	West tribe	25	7.6
	Not known	19	5.8
	Total	**328**	**100.0**
Marital status	Married	253	77.1
	Un-married	13	4.0
	Divorced	43	13.1
	Widowed	17	5.2
	Other	2	0.6
	Total	**328**	**100.0**

Table 2 indicates that nearly 40% of women have 3-5 times pregnancies. Nearly two thirds 59.1% of women were aborted before. The majority of women 91.5% were breast feeding her children. The most of women breast feeding duration was two years 54.6%. More than one third 31% of women were used contraceptive method. Bills were the most type of contraceptive used 21%. More than fifty percent (55%) of women has relative with breast cancer. The relationships to relative were mother 5.8%, sister 11%, ant to mother 14.3%, to father 12.5%, and other 11.6%.

Table 2. Distribution of women according to socio-demographic characteristics

Clinical characteristics	**Response**	**N**	**%**
Number of pregnancies	Once-twice	75	22.9
	3-5 times	131	39.9
	More than 5 times	103	31.4
	None	6	1.8
	Not applicable	13	4.0
	Total	**328**	**100.0**
Abortion occurrence	Yes	115	35.1
	No	194	59.1
	Not applicable	19	5.8
	Total	**328**	**100.0**
Breastfeed her children	Yes	300	91.5

	No	9	2.7
	Not applicable	19	5.8
	Total	**328**	**100.0**
Breast feeding duration	6 months	2	0.6
	1 year	29	8.8
	18 months	99	30.2
	Two years	179	54.6
	Total	**328**	**100.0**
Use of contraceptive method	Yes	102	31.0
	No	20	6.0
	Not applicable	207	63.0
	Total	**328**	**100.0**

Demographic characteristics	**Response**	**N**	**%**
Type of contraceptive method	Injections	33	10.0
	Bills	69	21.0
	Not applicable	226	69.0
	Total	**328**	**100.0**
Relative with breast cancer	Yes	180	55.0
	No	144	44.0
	Idont know	3	1.0
	Total	**328**	**100.0**
Relationship with the relative who has breast cancer	Mother	19	5.8
	Sister	36	11.0
	Ant to mother	47	14.3
	To father	41	12.5
	Other	38	11.6
	Not applicable	147	44.8
	Total	**328**	**100.0**

	Ultrasound	190	58.0
Exposure to radiation	Therapeutic radiation	13	4.0
	X-RAY	23	7.0
	Pelvic assessment	102	31.0
	Total	**328**	**100.0**
Exposure to mammography investigation	Yes	16	5.0
	No	308	94.0
	Idont remember	3	1.0
	Total	**328**	**100.0**
Agreement to mammography screening	Yes	318	97.0
	No	7	2.0
	Idont know	3	1.0
	Total	**328**	**100.0**

Table 3 indicates that there was significant association between breast cancer and age group, p=.000. The most breast cancer women from category 4 (0.9%) and category 5 (0.6) was significantly occurred among age group 51-60 years.

Table 3. Association between Breast cancer and age group

Age		**BIARD classification**					
		Cat. (1)	**Cat. (2)**	**Cat. (3)**	**Cat.(4)**	**Cat.(5)**	**Total**
40-50	n	70	22	13	2	1	108
	%	21.3%	6.7%	4.0%	.6%	.3%	32.9%
51-60	n	31	37	20	3	2	93
	%	9.5%	11.3%	6.1%	.9%	.6%	28.4%
51-70	n	15	45	39	2	1	102
	%	4.6%	13.7%	11.9%	.6%	.3%	31.1%
71-80	n	2	5	14	1	1	23
	%	.6%	1.5%	4.3%	.3%	.3%	7.0%
> 80	n	1	1	0	0	0	2
	%	.3%	.3%	.0%	.0%	.0%	.6%
Total	**n**	**119**	**110**	**86**	**8**	**5**	**328**
	%	**36.3%**	**33.5%**	**26.2%**	**2.4%**	**1.5%**	**100.0%**

$\chi 2 = 82.2; df = 16; P\text{-value} = .000$ (Significant)

Table 4 shows that there was no significant association between women breast cancer and tribe, p>0.05.

Table 4. Association between Breast cancer and tribe

Biard classification		Tribe					Total
		Middle	North	East	West	Not Known	
cat (1)	n	39	62	5	7	6	119
	%	11.9%	18.9%	1.5%	2.1%	1.8%	36.3%
cat (2)	n	36	57	4	8	5	110
	%	11.0%	17.4%	1.2%	2.4%	1.5%	33.5%
cat (3)	n	24	46	4	8	4	86
	%	7.3%	14.0%	1.2%	2.4%	1.2%	26.2%
cat (4)	n	1	3	1	1	2	8
	%	.3%	.9%	.3%	.3%	.6%	2.4%
cat(5)	n	0	2	0	1	2	5
	%	.0%	.6%	.0%	.3%	.6%	1.5%
Total	**n**	**100**	**170**	**14**	**25**	**19**	**328**
	%	**30.5%**	**51.8%**	**4.3%**	**7.6%**	**5.8%**	**100.0%**

$\chi 2$ =22.9;df=16;P-value=.116 (Not significant)

Table 5 illustrates that there was significant association between breast cancer and exposed to radiation, p=.000. Breast cancer was significantly prevalent among those who were exposed to ultrasound from category 4 (1.5%) and category 5 (0.9%).

Table 5. Association between Breast cancer and exposure to radiation

Biard classification		Exposure to radiation				Total
		Ultrasound	x-ray	Pelvic assessment	Not exposed	
cat (1)	n	97	7	13	2	119
	%	29.6%	2.1%	4.0%	.6%	36.3%
cat (2)	n	54	11	40	5	110
	%	16.5%	3.4%	12.2%	1.5%	33.5%
cat (3)	n	32	5	43	6	86
	%	9.8%	1.5%	13.1%	1.8%	26.2%
cat (4)	n	5	0	3	0	8
	%	1.5%	.0%	.9%	.0%	2.4%
cat(5)	n	3	0	2	0	5

	%	.9%	.0%	.6%	.0%	1.5%
Total	**n**	**191**	**23**	**101**	**13**	**328**
	%	**58.2%**	**7.0%**	**30.8%**	**4.0%**	**100.0%**

$\chi 2$ =52.8;df=12;P-value=.000 (significant)

As shown in table 5, there was significant association between breast cancer and education level, p=.000. Breast cancer from category 4 (1.2%) and category 5 (0.9%) was significantly more occurred among women having secondary school and primary school respectively.

Table 5. Association between Breast cancer and education level

Biard classification		**Educational level**					
		Khalwa	**primary**	**secondary**	**university**	**Others**	**Total**
cat (1)	n	3	22	48	44	2	119
	%	.9%	6.7%	14.6%	13.4%	.6%	36.3%
cat (2)	n	13	43	33	16	5	110
	%	4.0%	13.1%	10.1%	4.9%	1.5%	33.5%
cat (3)	n	13	36	22	7	8	86
	%	4.0%	11.0%	6.7%	2.1%	2.4%	26.2%
cat (4)	n	1	2	4	1	0	8
	%	.3%	.6%	1.2%	.3%	.0%	2.4%
cat(5)	n	0	3	2	0	0	5
	%	.0%	.9%	.6%	.0%	.0%	1.5%
Total	**n**	**30**	**106**	**109**	**68**	**15**	**328**
	%	**9.1%**	**32.3%**	**33.2%**	**20.7%**	**4.6%**	**100.0%**

$\chi 2$ =42.8;df=16;P-value=.000 (significant)

Table 6 shows that there was no significant association between breast cancer and relatives, p>0.05.

Table 6. Association between Breast cancer and relatives

Biard classification		**relatives had breast cancer**			**Total**
		Yes	**No**	**Dont know**	
cat (1)	N	53	65	1	119
	%	16.2%	19.8%	.3%	36.3%
cat (2)	N	65	44	1	110
	%	19.8%	13.4%	.3%	33.5%
cat (3)	N	55	31	0	86

	%	16.8%	9.5%	.0%	26.2%
cat (4)	N	4	4	0	8
	%	1.2%	1.2%	.0%	2.4%
cat(5)	N	4	1	0	5
	%	1.2%	.3%	.0%	1.5%
Total	**N**	**181**	**145**	**2**	**328**
	%	**55.2%**	**44.2%**	**.6%**	**100.0%**

$\chi 2$ =10.8;df=8;P-value=.214 (Not significant)

Table 7 shows that, there was significant association between breast cancer and used of contraceptive method, p=0.000. Breast cancer was significantly commonly found from category 4 (1.2%) among women who used contraceptive method.

Table 7. Association between Breast cancer and use of contraceptive method

Biard classification		**Use of contraceptive**			
		Yes	**No**	**Not applicable**	**Total**
cat (1)	N	44	70	5	119
	%	13.4%	21.3%	1.5%	36.3%
cat (2)	N	27	75	8	110
	%	8.2%	22.9%	2.4%	33.5%
cat (3)	N	24	59	3	86
	%	7.3%	18.0%	.9%	26.2%
cat (4)	N	4	4	0	8
	%	1.2%	1.2%	.0%	2.4%
cat(5)	N	2	0	3	5
	%	.6%	.0%	.9%	1.5%
Total	**N**	**101**	**208**	**19**	**328**
	%	**30.8%**	**63.4%**	**5.8%**	**100.0%**

$\chi 2$ =36.3;df=8;P-value=.000 (significant)

Table 8 indicates that there was significant association between breast cancer and type of contraceptive, p=.038. Breast cancer was significantly prevalent from category 4 (1.2%) among women who used bills contraceptive.

Table 8. Association between Breast cancer and type of contraceptive method

Biard	**Type of contraceptive**	**Total**

classification		Bills	injection	Not applicable	
cat (1)	N	34	10	75	119
	%	10.4%	3.0%	22.9%	36.3%
cat (2)	N	13	14	83	110
	%	4.0%	4.3%	25.3%	33.5%
cat (3)	N	16	8	62	86
	%	4.9%	2.4%	18.9%	26.2%
cat (4)	N	4	0	4	8
	%	1.2%	.0%	1.2%	2.4%
cat(5)	N	2	0	3	5
	%	.6%	.0%	.9%	1.5%
Total	**N**	**69**	**32**	**227**	**328**
	%	**21.0%**	**9.8%**	**69.2%**	**100.0%**

$\chi 2$ =16.3;df=8;P-value=.038 (significant)

As shown in table 9 there was no significant association between breast cancer and breast feeding, p>0.05.

Table 9. Association between Breast cancer and breast feeding

Biard classification		Breast feeding			
		Yes	No	Not applicable	Total
cat (1)	N	110	2	7	119
	%	33.5%	.6%	2.1%	36.3%
cat (2)	N	98	4	8	110
	%	29.9%	1.2%	2.4%	33.5%
cat (3)	N	80	3	3	86
	%	24.4%	.9%	.9%	26.2%
cat (4)	N	8	0	0	8
	%	2.4%	.0%	.0%	2.4%
cat(5)	N	4	0	1	5
	%	1.2%	.0%	.3%	1.5%
Total	**N**	**300**	**9**	**19**	**328**
	%	**91.5%**	**2.7%**	**5.8%**	**100.0%**

$\chi 2$ =4.9;df=5;P-value=.759 (Not significant)

There was significant association between breast cancer and breast feeding duration, p=.000. Breast cancer was significantly reduced among women whose breast feeding

duration 2 years (2.1%) from category 4 in comparison to other categories as shown in table 10 .

Table 10. Association between Breast cancer and breast feeding duration

Biard classification		Duration of breast feeding					Total
		6 month	One year	18 month	2years	Not applicable	
cat (1)	N	1	13	50	50	5	119
	%	.3%	4.0%	15.2%	15.2%	1.5%	36.3%
cat (2)	N	1	8	31	62	8	110
	%	.3%	2.4%	9.5%	18.9%	2.4%	33.5%
cat (3)	N	0	8	16	59	3	86
	%	.0%	2.4%	4.9%	18.0%	.9%	26.2%
cat (4)	N	0	0	1	7	0	8
	%	.0%	.0%	.3%	2.1%	.0%	2.4%
cat(5)	N	0	0	1	1	3	5
	%	.0%	.0%	.3%	.3%	.9%	1.5%
Total	**N**	**2**	**29**	**99**	**179**	**19**	**328**
	%	**.6%**	**8.8%**	**30.2%**	**54.6%**	**5.8%**	**100.0%**

$\chi 2$ =50.2;df=16;P-value=.000 (significant)

Table 11 shows that there was no significant association between breast cancer and abortion occurrence, p>0.05.

Table 11. Association between Breast cancer and abortion occurrence

Biard classification		Abortion occurrence			
		Yes	No	Not applicable	Total
cat (1)	n	41	71	7	119
	%	12.5%	21.6%	2.1%	36.3%
cat (2)	n	31	71	8	110
	%	9.5%	21.6%	2.4%	33.5%
cat (3)	n	36	47	3	86
	%	11.0%	14.3%	.9%	26.2%
cat (4)	n	6	2	0	8
	%	1.8%	.6%	.0%	2.4%
cat(5)	n	1	3	1	5

	%	.3%	.9%	.3%	1.5%
Total	**n**	**115**	**194**	**19**	**328**
	%	**35.1%**	**59.1%**	**5.8%**	**100.0%**

$\chi 2$ =12.4;df=8;P-value=.133 (Not significant)

Table 12 shows that there was significant association between breast cancer and number of pregnancies, p=.000. Breast cancer from category 4 (1.2%) and category 5 (0.9%) was significantly more occurred among women whose number of pregnancies more than 5 times.

Table 12. Association between Breast cancer and number of pregnancies

Biard classification		**No. of pregnancies**					**Total**
		1-2 times	**3-5 times**	**More than 5 times**	**None**	**Not applicable**	
cat (1)	n	35	58	19	2	5	119
	%	10.7%	17.7%	5.8%	.6%	1.5%	36.3%
cat (2)	n	23	48	31	3	5	110
	%	7.0%	14.6%	9.5%	.9%	1.5%	33.5%
cat (3)	n	15	22	46	1	2	86
	%	4.6%	6.7%	14.0%	.3%	.6%	26.2%
cat (4)	n	2	2	4	0	0	8
	%	.6%	.6%	1.2%	.0%	.0%	2.4%
cat(5)	n	0	1	3	0	1	5
	%	.0%	.3%	.9%	.0%	.3%	1.5%
Total	**n**	**75**	**131**	**103**	**6**	**13**	**328**
	%	**22.9%**	**39.9%**	**31.4%**	**1.8%**	**4.0%**	**100.0%**

$\chi 2$ =42.9;df=16;P-value=.000 (significant)

Tale 13 shows that there was significant association between breast cancer and marital status, p=0.000. Breast cancer from category 4 (2.1%) and category 5 (0.9%) was significantly more occurred among married women.

Table 13. Association between Breast cancer and marital status

		Marital status					Total
		married	Un-Married	divorced	Widowed	other	
cat (1)	N	105	5	4	4	1	119
	%	32.0%	1.5%	1.2%	1.2%	.3%	36.3%
cat (2)	N	85	5	7	13	0	110
	%	25.9%	1.5%	2.1%	4.0%	.0%	33.5%
cat (3)	N	53	2	6	25	0	86
	%	16.2%	.6%	1.8%	7.6%	.0%	26.2%
cat (4)	N	7	0	0	1	0	8
	%	2.1%	.0%	.0%	.3%	.0%	2.4%
cat(5)	N	3	1	0	0	1	5
	%	.9%	.3%	.0%	.0%	.3%	1.5%
Total	**N**	**253**	**13**	**17**	**43**	**2**	**328**
	%	**77.1%**	**4.0%**	**5.2%**	**13.1%**	**.6%**	**100.0%**

$\chi 2$ =69.7;df=16;P-value=.000 (significant)

DISCUSSION:

This study aimed to determine the factors associated breast cancer among women aged 40 years and above in great Wad Medani locality.

Our study showed that there was significant association between breast cancer and age group, p=.000. However the study proved that the most breast cancer women from category 4 (0.9%) and category 5 (0.6) was significantly occurred among age group 51-60 years. This finding agree with other previous studies that confirmed that the age of menopause over 50 years is associated with an increased risk of breast cancer. [9,10, 11] The results of a case-control study also confirmed the association between older age in menopause and the incidence of breast cancer (OR, 2.43; 95% CI, 1.2–4.9). [12] 36 there was no significant association between women breast cancer and tribe, p>0.05.

There was significant association between breast cancer and exposed to radiation, p=.000. In accordance finding showed that A large population-based case–control study found that the risk of developing breast cancer in women, who are faced with radiation due to the history of previous cancer treatment (OR, 3.55; 95% CI, 1.47–8.54), screening or tuberculosis (OR, 2.49; 95% CI, 1.82–3.40), or pneumonia monitoring (OR, 2.19; 95% CI, 1.38–3.47), is two to three times higher. [13] On the other hand, those who have been treated with radiation due to childhood cancer and people who are being treated with the whole-lung irradiation are at the highest risk of

developing breast cancer.

In addition the study showed that there was significant association between breast cancer and education level, p=.000. Literature also stated that a higher educational level was associated with the good performance of women in breast self-examination. [14,15] Results suggest that educating the community could be used as a tool for increasing awareness of breast cancer and implementing prevention strategies. [16]

Moreover our study showed that there was no significant association between breast cancer and relatives, p>0.05. Although several genetic factors contribute to the incidence of breast cancer, approximately 40% of hereditary breast cancer cases occur due to mutations in the BRCA1 and BRCA2 genes inherited through the dominant autosomal method. [17] Based on a prospective cohort study, the risk of cumulative breast cancer by the age 80 years was 72% in the carriers of BRCA1 mutation (95% CI, 65%–79%), and this amount was 69% in the carriers of BRCA2 mutation (95% CI, 61%–77%). [18] Changes in human interferon α-2b may be involved in the onset and progression of breast cancer in addition to other risk factors. [19] In a case–control study, matrix metalloproteinase (MMP-2 c-735-T) polymorphisms were associated with an increased risk of developing breast cancer. Furthermore, MMP-2c allele may also increase the risk of developing breast cancer at a younger age by 1.64-fold (OR, 1.64; 95% CI, 1.01–2.7). [20]

Furthermore the study indicated that there was significant association between breast cancer and used of contraceptive method, p=0.000. While also there was significant association between breast cancer and type of contraceptive, p=.038.

The role of contraceptive pills in the incident of breast cancer has been addressed in various studies. [21,22] Based on the results of a case–control study, the use of oral contraceptive pill is associated with an increased risk of developing breast cancer (OR, 9.50; 95% CI, 3.38–26.7). [23] This result was confirmed in other studies. [24, 25, 26] Meanwhile, according to the findings of a study by McDonald and coworkers, [27] which was conducted on 35- to 64-year-old women, current (RR, 1; 95% CI, 0.8–1.3) or previous use (RR, 0.9; 95% CI, 0.8–1) of contraceptive pills was not associated with an increased risk of developing breast cancer. Williams *et al*. [28] showed a relationship between the current use of contraceptives and breast lobular tumors (OR, 1.86; 95% CI, 1.08–3.20). Researchers, regarding the association of medroxyprogesterone acetate with breast cancer, have stated that this correlation may be due to the diagnosis of mammary tumors or the growth of existing mammary

tumors. [29] An increased risk of developing breast cancer diminishes 5–10 years after the discontinuation of hormonal contraceptives. [30]

There was no significant association between breast cancer and breast feeding, p>0.05. However the study indicated that there was significant association between breast cancer and breast feeding duration, p=.000. Breast feeding is a protective factor against breast cancer, and many researchers have pointed to the role of lactation in breast cancer prevention. [31,32] Based on the results of various studies, the length of lactation is associated with breast cancer. [23, 24] The protective effect of lactation increases with increasing duration of lactation. [24] The result of a case- control study showed that the combination of two protective factors (two or more childbirth and lactation for more than 13 months) could reduce the risk of developing breast cancer by up to 50%. [33] Furthermore, breastfeeding may be associated with improvements in prognosis and a decreased rate of recurrence (HR, 0.70; 95% CI, 0.53–0.93) and an increased rate of survival among breast cancer patients, although this effect is different in different ER states. [34] The protective effect of breast feeding on breast cancer risk has not been proven in other studies. [35,36]

This study showed that there was no significant association between breast cancer and abortion occurrence, p>0.05. In contrast finding showed that higher incidence rate of abortion was associated with an increased risk of developing breast cancer (OR, 6.26; 95% CI, 4.16–9.41). [23] However, this finding was not confirmed in another study. While in line study in reanalysis of findings from 53 epidemiologic studies showed that self induced or natural abortion does not increase the risk of developing breast cancer. [37]

In addition the study revealed that there was significant association between breast cancer and number of pregnancies, p=.000. This finding supported by other studies that found among parous women, the risk of breast cancer decreases with increasing parity. [38,39] In a case–control study, older age during the first childbirth was the most important risk our or more births, 2.4; 95% CI, 1.1–5.1) and a decreased risk among people older than 45 years (IRR, 0.5; 95% CI, 0.3–0.9). [40] In a prospective cohort study, nulliparity was associated with large tumors (>20 mm; RR, 1.89; 95% CI, 0.91–3.91), high Ki67 levels (RR, 1.95; 95% CI, 0.93–4.10), high cyclin D1 levels (RR, 2.15; 95% CI, 0.88–5.27), grade III (RR, 2.93; 95% CI, 1.29–6.64), and HER2-positive tumors (RR, 3.24; 95% CI, 1.02–10.25). [41] 55 In addition to full-term pregnancy, early maternal age reduces the risk of developing breast cancer by up to 23%. [24] There is a positive correlation between the age of more than 26 years during the first childbirth and lobular disease (OR, 1.35; 95% CI, 1.03–1.78). [28]

Older age at first full-term pregnancy is associated with an increased risk of developing breast cancer. [24,42], In a case–control study, first full-term pregnancy in women aged 20 years or older is associated with 40%–50% increased risk of breast cancer. [38] Older age at the last childbirth is also associated with an increased risk of developing breast cancer (OR, 2.15; 95% CI, 1.52–3.08), [23] although no significant relationship was found between the breast cancer and the time of last childbirth in the another study. [40]

On the other hand the study showed that there was significant association between breast cancer and marital status, p=0.000. This finding inline with Lee *et.al*. [40] .

Limitations of the study:

The constrains accompanied this study were includes that most women were reluctant to do mammogram, mammography machine is exposed many time to be not usable for unavailability of spare parts in addition to loss of two years due to corona outbreak and revolution.

CONCLUSION:

The study showed that there were many factors influence breast cancer prevalence among women, so design and implementation of screening programs and the control of risk factors seem essential.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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