

Research Article

Socio-Demographic Risk Factors Associated with Breast Cancer in Gaza Strip

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Abstract

Background: Breast cancer is a critical disease in the global burden of disease; In Gaza Strip, breast cancer is considered a major public health problem. As expected by WHO, it is the first common cancer concerning females and the second leading cause of female death after cardiovascular disease. This study aimed to evaluate the effects of socio-demographic risk factors associated with breast cancer among breast cancer women in Gaza Strip.

Methodology: The study designed to be observational analytical retrospective investigation, hospital based case-control study, which consist of the name of Governorate, kinds of living area, marital status, number of children, educational level and housing type. The study population consisted of two types; case group (105 case) which included accessible breast cancer patients, all of them received the health services in oncology daily-care clinics in the two main hospitals in Gaza strip "Al Shifa and European Gaza hospitals" from January to September 2015. The second type of the tested study population was control group (209 case) free from breast cancer as they were selected from women utilizing the primary health care centers.

Results: There is a difference between two groups in terms of age group of both cases and controls. The difference between the two groups reach a statistical significant level ($P=0.001$), otherwise no other socio-demographic data reached a statistical significant level. Therefore, more aged women had higher breast cancer 79% ($n=83$) more than 40 years old. Breast cancer incidence is very low in age group between 18-25 years about 1.9%, moderate incidence in age group between 26-40 years about 19%.

Conclusion: age is considered as one of the risk factors that affect the chance of getting breast cancer among women. Also, classified as one of the risk factors that affect breast cancer disease among women. Breast cancer incidence is very low in age group between 18-25.

Keywords: Age; Breast Cancer; Risk Factors

Introduction

Cancer continuous to be a world killer and it account the one of third disease threaten health in the world. According to World Health Organization (WHO); globally during 2012 about 8.2 million people died from cancer. More than 70% of those deaths occurred in low and middle income countries. About 30% of cancer deaths are due to the five-leading behavioral and dietary risks: high Body Mass Index (BMS), low fruit and vegetable intake, lack of physical activity tobacco use and alcohol abuse. Therefore, it

could be preserved by modifying or avoiding these risk factors (WHO, 2014) [1].

Breast cancer is a critical disease in the global burden of disease; it is the most common cancer in women both in the developed and less developed world. According to World Health Organization (WHO) global health estimates (2013), it is estimated that worldwide over 508000 women died in 2011 due to breast cancer. Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries (WHO, 2014) [1]. Breast cancer is the most prevalent cancer in females worldwide and still the most

common cause of death in women, with more than 327,000 deaths each year, every year there are 1.35 million new cases and about 4.4 million women are believed to be living with breast cancer, an estimated 1.7 million women will be diagnosed with breast cancer in 2020—a 26% increase from current levels—mostly in the developing world (The Lancet, 2009). The reported incidence rate for breast cancer varies enormously between countries, it was highest in USA, Europe, New Zealand, Canada and Australia, and lowest in Asia and Africa (IARC, 2002) [2].

Breast cancer remains one of the most common cancers in the Eastern Mediterranean region like the whole world, with incidence rate not higher than the developed world, however it affects women in younger ages and is detected at a late stage. Breast cancer still impacts the developing low and middle income countries more than the high-income countries (Sarhan, 2009) [3]. Now breast cancer occupies the number one position in all countries of the Arab World, even if absolute rates are relatively low (Salim et al., 2009) [4]. Cases tend to be young and almost half of patients are below 50, with a median age of 49-52 years as compared to 63 in industrialized nation (Elsughier et al., 2007) [5].

In Gaza Strip, breast cancer is considered a major public health problem. As expected, it is the first common cancer concerning females and the second leading cause of female death after cardiovascular disease. It accounts more than 18.5% of all female cancers. The total number of reported breast cancer was 1283 cases during the years 2009-2014, from them 1207 female cases forming 31.3% of the total cancer cases and 76 male cases forming 1.1% of the total cancer cases. The incidence rate among Gaza women is 149.1 per 100,000 women in the period 2009-2014. In addition, the age group 55-64 reported the maximum number of cases 317 forming 24.7% of the total cases; this rate is one third of the rate reported among the American women (WHO, 2016).

Methodology

Study Design

The study designed to be a hospital based case-control study, it was an observational analytical retrospective investigation, and it is very useful to investigate the possible risk factors of breast cancer among women in Gaza Strip.

Study Population

The study population consisted of two types; case group which included accessible breast cancer patients. The total number of available cases was 105 subjects. Double controls were chosen as another type of the tested study population, they were selected from women utilizing the primary health care centers. Total number of controls was 209 subjects; this group of subjects is considered free from breast cancer.

Selection Criteria

Cases

Cases were diagnosed as breast cancer patient. They must be registered in the oncology services archive and their medical services are available in the two selected hospitals. Diagnosis of the disease was confirmed by histological testing and documented by histological report which should be provided in their files.

Controls

Controls are clinically free from breast cancer as they were chosen from primary health care centers, thus they may have minor health problems. Must not suffer from idiopathic weight loss and no history of chronic health problems.

Place of the Study

The first part the study was to collect cases; it was performed at the oncology daycare clinics of both Al Shifa and European Gaza Hospitals, which are considered the main governmental hospitals providing the oncology services to the cancer patients in Gaza strip. Whereas the second part was to collect control, it was established through the primary health care centers of the same governorates to apply the matching process in the place residency.

Data Collection

Data were collected through structured face to face questionnaire. It had been reviewed by 7 experts who are qualified in many fields related to the study. Generally, the questionnaire included many variables that are directly and indirectly reflects the outcomes needed for the study. Before the beginning of data collection, all questionnaire form prepared, organized and classified with serial numbers to ensure the availability of the needed information. Purpose of the study was explained to the patients before obtaining consent, during the interview any vague information was simplified to ensure exact and real answer by the responders. Great care was taken to ensure privacy and confidentiality.

Pilot Study

Pilot testing had been done prior to the beginning of data collection to check validity of the Questionnaire, refining of questionnaire had been done according to the result of the pilot study.

Period of the Study

The study carried out from January to September 2015.

Response Rate

The study response rate was of high levels. From the 1228, available cases that were going with the inclusion criteria and being asked to participate in the study 105 patients agreed to be a member of the conducted study giving a response rate of 77%.

Controls response rate was even higher to reach 66% that from 140 persons who match with the controls criteria 657 members agree to share in the study.

Ethical Considerations

An informed consent attached to each questionnaire obtained from each participant in the Study. The researcher explained the purpose and the objectives of the study to all the participants, and the inclusion in the study was optional and confidential. Neither name nor personal data had been published.

Statistical Analysis

Statistical Package for Social Sciences version 15 (SPSS,

2007) used for data coding, entry and analysis. Simple distribution and frequencies of the study variables, the cross tabulation, and normal chi square had been applied. P value had been calculated for the ordinal level measures ($P < 0.05$), variables that are statistically significant by chi square test had been analyzed using odds ratio and 95% confidence interval.

Results and Discussion

The results of the study show the descriptive and inferential analysis of the findings. In general, 314 questionnaires had been filled from the interviewees during face to face interview with the participants, of which 105 were case samples (women with breast cancer) and 209 were control sample (women free from breast cancer).

Governorate	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
North Gaza	17	16.2	32	15.3	49	15.6			
Gaza	48	45.7	97	46.4	145	46.2			
Mid-Zone	16	15.2	31	14.8	47	15	0.996	-	-
South Gaza	24	22.9	49	23.4	73	23.2			
Total	105	100	209	100	105	100			

Table 1: Breast Cancer and Governorate Name.

(Table 1) presents the relationship between socio-demographic variables and breast cancer among cases and controls. Regarding Governorates where cases and controls have been lived, the difference between the two groups did not reach a statistical significant level ($P = 0.996$). This means that the Governorate does not affect the chance of getting breast cancer because the two groups have been matched in regard to governorates

Living area	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
Agricultural	22	21	42	20.1	64	20.4			
Industrial	24	22.9	44	21.1	68	21.7			
Border	16	15.2	46	22	62	19.7	0.56	-	-
Residential towers	43	41	77	36.8	120	38.2			
Total	105	100	209	100	314	100			

Table 2: Breast Cancer and Living Area Characteristics.

(Table 2) presents the relationship between kinds of living area and its relationship with breast cancer, difference between the two groups did not reach a statistical significant level also ($P = 0.556$). This means that neither governorate nor kind of living area in this study affects the chance of getting breast cancer because the two groups have been matched in regard to the living area. These results are congruent with Pakseresht case-control study (2009) [6] conducted in Delhi and showed that there was a significant difference between breast cancer cases and controls in relation to the marital status. However, these results do not congruent with another study that has been conducted in West Bank by Darweesh (2009) [7] who found that there was no association between marital status and breast cancer.

Age group	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
18-25 years	2	1.9	26	12.4	28	8.9			
26-40 years	20	19	57	27.3	77	24.5	0.001	-	-
More than 40 years	83	79	126	60.3	209	66.6			
Total	105	100	209	100	314	100			

Table 3: Breast Cancer and Age Group.

As indicated in (Table 3), there is a difference between two groups in terms of age group of both cases and controls and more age women had higher breastcancer. The differencebetween the two groups reach a statistical significant level (P= 0.001). Therefore, age is considered as one of the risk factors that affect the chance of getting breastcancer among women and classified as one of the risk factors that affect breast cancer disease among women. It was reported that breast cancer incidence is very low before age 25, and increases up to 100-fold by age 45 (Hulka and Moorman, 2001) [8].

Marital status	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
Single	8	7.6	11	5.3	19	6.1			
Married	81	77.1	160	76.6	241	76.8			
Divorced	3	2.9	13	6.2	16	5.1	0.531	-	-
Widowed	13	12.4	25	12	38	12.1			
Total	105	100	209	100	314	100			

Table 4: Breast Cancer and Marital Status.

(Table 4) presents the marital status and its relationship with breast cancer, the difference between the two groups did not reach a statistical significant level also (P= 0.531). This means that the material status does not affect the chance of getting breast cancer because the two groups have been matched in regard to material status. These results are agreeing with Pakseresht case-control study (2009) [6] conducted in Delhi and showed that there was a significant difference between breast cancer cases and controls in relation to the marital status. However, these results congruent with another study that has been conducted in West Bank by Darweesh (2009) [7] who found that there was no association between marital status and breast cancer.

Number of Children	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
Less than 3	6	5.7	39	18.7	45	14.3			
5-Mar	24	22.9	53	25.4	77	24.5			
More than 5	56	53.3	94	45	150	47.8	0.007	-	-
Nothing	19	18.1	23	11	42	13.4			
Total	105	100	209	100	314	100			

Table 5: Breast Cancer and Number of Children.

(Table 5) represents the relationship between breast cancer and number of children indicates the difference between the two groups did not reach a statistical significant level (P= 0.007). This means that number of children have no effects on the chance of getting breast cancer so it has no association with breast cancer among women in Gaza Governorate.

The Work	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
Employed	11.1	35	10.5	22	12.4	13			
Unem- ployed	88.9	279	89.5	187	87.6	92	0.622	2.492-0.579	1.201
Total	100	314	100	209	100	105			

Table 6: Breast Cancer and the Work of Woman.

(Table 6) shows that 12.4% of cases workers women compared to 10.5% of controls, while 87.6% of cases did not have a work compared to 89.5% of controls. The difference between two groups did not reach a statistical significant level (P= 0.622, OR 0.201). This factor does not affect the chance of getting breast cancer so it does not consider as a risk factor of breast cancer.

Educational Level	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
Elementary	19	18.1	23	11	42	13.4			
preparatory	25	23.8	58	27.8	83	26.4			
Secondary	39	37.1	82	39.2	121	38.5	0.369	-	-
Bachelor	22	21	46	22	68	21.7			
Total	105	100	209	100	314	100			

Table 7: Breast Cancer and Educational Level.

As indicated in (Table 7), there is a no difference between two groups in terms of educational level of both cases and controls the difference between the two groups doesn't reach a statistical significant level (P= 0.369). Therefore, education does not consider as one of the risk factors that affect the chance of getting breast cancer among women.

Type of House	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
villa	1	1	2	1	3	1			
An apart- ment	49	46.7	78	37.3	127	40.4			
Independent	48	45.7	87	41.6	135	43	0.02	-	-
Asbestos	7	6.7	42	20.1	49	15.6			
Total	105	100	209	100	314	100			

Table 8: Breast Cancer and Type of House.

Urban and Rural living site	Case		Control		Total		P-value	CI	Odds ratio
	No.	%	No.	%	No.	%			
City	71	67.6	136	65.1	207	65.9			
Village	7	6.7	14	6.7	21	6.7	0.891	-	-
Camp	27	25.7	59	28.2	86	27.4			
Total	105	100	209	100	105	100			

Table 9: Breast Cancer and Living Site Characteristics.

(Table 8 and Table 9) illustrate the difference between the two groups in housing type and place of living also doesn't reach a statistical significant level (P= 0.020 and 0.891) respectively, indicating that housing type and place of living doesn't affects the chance of getting breast cancer disease.

Conclusion

There is a difference between two groups in terms of age group of both cases and controls. The difference between the two groups reach a statistical significant level ($P= 0.001$), otherwise no other socio-demographic data reached a statistical significant level. Therefore, more aged women had higher breast cancer 79% (n= 83) more than 40 years old. Breast cancer incidence is very low in age group between 18-25 years about 1.9%, moderate incidence in age group between 26-40 years about 19%. Age is considered as one of the risk factors that affect the chance of getting breast cancer among women. Also, classified as one of the risk factors that affect breast cancer disease among women.

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