

Socioeconomic factors related with breast cancer Among females in river Nile, state 2011-2015

العوامل الاجتماعية والاقتصادية المتعلقة بسرطان الثدي

بين الاناث بولاية نهر النيل 2015-2011

Ahmed Saied Rahama Abdallah3 College of Business Administration-Hotat Bani Tamim, Price Sattam Ben Abdu-Alaziz University, Sudan	Adam A Hussein2 Department of Statistics and Population Studies, Red Sea University, Sudan.	Abdelbagi Sheikheldeen Habeeballah1 Registered collage, Faculty of Engineering, University of Elshaikh Abdallah Albady, River Nile State, Sudan.
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Abstract:

Breast cancer is the most widely recognized sort of cancer among ladies around the world, it the most common in developed countries than developing countries. Additionally in Sudan also is the most widely recognized sort. The reason for this investigation was to look at the connection between socioeconomic factors and breast cancer illness, this clear longitudinal examination was directed in River Nile State (RNS), Sudan, and add a new stock of data to the discipline.

Methods and Materials:-

A questionnaire was used to gather information from a random sample of 298 Sudanese women's (patient's personal data) recruited from River Nile State).

Statistical Analysis used-

Data were analyzed using the Statistical Package for Social Sciences (SPSS) software. Descriptive and inferential statistics such as the frequencies and percentages were used to describe the data; Chi-square tests were performed to establish the association between categorical variables.

Results:-

From the Chi-square test indicated that there's no statistical significance between Education level and breast cancer disease (Chi-square value equal to 0.799 which is higher than 0.05), While occupation, working status were hilly significantly associated with breast cancer incidence ($P=0.000$ each).

Conclusions:-

The examination uncovered that the breast cancer rate related with the occupation and working status of ladies, and no relationship between the breast cancer occurrence and Education level of the ladies dwelling in RNS.

Key words: Breast cancer, Socioeconomic factors, River Nile State, Sudan.

ملخص

يعتبر سرطان الثدي من أكثر أنواع السرطانات انتشاراً بين النساء في جميع أنحاء العالم خاصة في الدول النامية، وهناك نسبة قليلة من سرطان الثدي الذي يصيب الرجال. وفي السودان نجده من أكثر أنواع السرطانات شيوعاً بين النساء. وقد هدفت هذه الدراسة لتحديد العلاقة ما بين العوامل الاقتصادية والاجتماعية وسرطان الثدي للنساء المصابات بسرطان الثدي بولاية نهر النيل للفترة ما بين 2011 إلى 2015 م ، وقد تم الحصول على بيانات الدراسة وفق تصميم استمارة استبيان بعدد (298) استمارة (198 للنساء المصابات ، 100 للحالة الضابطة)، وزعت بصورة مباشرة على مجتمع الدراسة لجمع البيانات المطلوبة، وقد اشتمل الاستبيان علي العوامل الاقتصادية والاجتماعية المتمثلة في (العمر، القبيلة، نوع السكن، المهنة، الحالة الاجتماعية ، الدخل الشهري ، الإنفاق الشهري ، المستوى التعليمي ، حجم الأسرة ووسائل تنظيم الأسرة)، كما اشتمل على بعض العوامل الخطرة المساعدة على سرطان الثدي. تم استخدام برنامج الحزم الإحصائية (spss) لتحليل البيانات، حيث استخدم الإحصاء الوصفي كالتكرارات والنسب المئوية، وكذلك تم استخدام مربع (كاي تربيع) لتحديد العلاقة بين المتغيرات المستقلة والمتغير التابع. وقد خلصت الدراسة إلى أن (الحالة العملية والمهنة) ذوات دلالة إحصائية بسرطان الثدي. بينما وجد أن (المستوى التعليمي) ليس له معنوية إحصائية مع المرض. كما بينت الدراسة إلى أن المرأة العاملة اقل عرضة للإصابة بسرطان الثدي بمقدار 0.181 مرة من المرأة التي لا تعمل.

Introduction

Breast cancer is the most generally perceived risk impacting women around the world (Parkin, 2004), representing to 25% of each new case of cancer. One out of eight to one out of twelve women is most likely going to encounter the evil impacts of Breast cancer in a mind-blowing midst time in the made countries and one of each twenty two is presumably going to have the sickness in creating countries. Breast cancer event rate contrasts something like multiple times around the world. Domains of high-rate join North America and Europe (Parkin et al., 2001) south-east Asia contributes over 1/5th of the worldwide prevalence of the disease with Pakistan having highest incidence among Asian population after Israel (Bhurgri et al., 2000). The announced rate for breast cancer differs colossally between nations; it was most noteworthy in USA, Europe, New Zealand, Canada and Australia, and least in Asia and Africa (IARC, 2002).

Breast cancer remains a champion among the most notable cancer in the Eastern Mediterranean district like the whole world, with rate not higher than the made world, at any rate it impacts women in progressively young ages and is perceived at a late stages. Breast cancer still impact the growing low and focus compensation countries more than the significant compensation countries (Sarhan, 2009). Presently breast cancer possesses the main position in all nations of the Arab World, regardless of whether total rates are generally low (Salim et al., 2009). Cases have a tendency to be youthful and half of patients are beneath 50, with a middle age of 49-52 years when contrasted with 63 in industrialized country (Elsughier et al., 2007).

The latest world Health Organization Figures exhibit that cancer continues addressing an amazing overall disease load. Consistently 12 million new cancers are investigated and 7.9 million people fail horrendously of the illness, addressing a total of one in every eight overall passings. Generally, Africa and Asia have the least rates extending between 3.9 29.9 cases per 100,000 people (calleb, 2006). These low rates have been attributed to low screening rates and incomplete reporting (McGrath, 2004). Breast cancer in Africa is depicted by presentation with bleeding edge illness, nonattendance of information about breast cancer recurrence, incredible cost of screening and inaccessibility of screening workplaces (lamyina et al 2007).

We aimed to test the hypotheses that there are a strong positive correlation between socioeconomic factors and breast cancer disease.

Prior studies consistently show that cancer burden increases as socioeconomic status (SES) declines .However, studying the association between SES and cancer burden is complicated because cancer registries do not routinely collect data on SES. Consequently, researchers must link area-level SES data from the Census or individual level data from other sources. From the Census, researchers have relied on median household income, poverty rates and the percentage of adults with high school or college education within a zip code or census tract.

Researchers have also used Medicaid enrollment as a measure of SES. Area level studies usually show some association between cancer burden and SES. (Xiao et al. 2007) found a negative association between median income and the percentage of college graduates in a Census tract and the likelihood of being diagnosed with late-stage breast cancer.

(Du et al. 2006) found that racial disparities in breast cancer mortality were related to area level SES. The relationship between cancer health and area-level SES appears to be independent of racial disparities in cancer (Albain et al., 2009); however, it is important to stress that data limitations hamper efforts to

fully characterize the SES-race-cancer interaction. In studies that have been able to measure SES with individual-level data (i.e., the SES of the individual rather than the community where they live), the association between SES and cancer burden is stronger.

This seems to explain a substantial portion of the racial disparity in cancer burden (Albano et al., 2007). Persons with higher educational attainment have lower mortality rates for breast cancer. This association was consistent across sites, race and gender groups (Albano et al., 2007). Person with low educational attainment have greater rates of breast cancer incidence, lower survival rates and higher mortality rates. Among Medicare beneficiaries, cancer mortality rates decline with income and educational attainment. Persons with private insurance have lower mortality rates compared to persons who are uninsured or covered by Medicaid.

Numerous studies have assessed the cost of cancer. The cost of cancer can be divided into three main parts: the cost of cancer treatment, the indirect cost of cancer due to lower productivity for cancer patients, and the cost of premature death due to cancers (Taylor, 2005). The cost of cancer treatment is the direct medical care expenditures attributed to cancer care and additional care provided patients for other conditions due to complications associated with cancer. The indirect cost of cancer is the value of the lost days of work and the lower wages incurred by cancer patients due to their illness. The cost of premature death is the value of the years of life lost due to cancer mortality. Presumably, persons whose lives are cut short by cancer would have contributed to their families, communities and society.

Material and methods

In Sudan the all out number of cancer cases in (2012) arrived at 7146 and 434 in River Nile state just comprised 6.07% of the absolute cases (KSMH, 2012). With this huge number there is no Cancer treatment focus in the state so all cases are alluded to Khartoum since add further weight to patient and family. This implies any dangerous operator influences ladies, generally will affect the half of the populace, likewise ladies in River Nile State society assume a urgent job in the socialization procedure, so it is essential to place connected at the hip to battle against these risks like breast cancer so as to get an exceptionally sound present and future age. so this investigation attempts to feature the statistic elements related with breast cancer among ladies in (RNS) so as to empower the choice and approach creators to consider lady's wellbeing into their motivation in away to help them in improving their lives.

Statistical analysis was done using Statistical package for Social (version 20 IBM, SPSS, Chicago, IL, USA) all summary statistics are stated within 95% confidence limits. A method appropriate for the samples was applied to the percentages and Chi-square test.

Results:

In this section the analysis of the results of the study are presented in terms of the derived frequencies and cross tabulations of the different variables about the breast cancer, the population under study consist of breast cancer patients treated at Radiation and Isotopes Center in Khartoum (RICK). These patients constitute the sampling units, from the population of breast cancer patients treated at (RICK). a random sample has been selected using the sample random sampling technique, Socioeconomic information included: education level, working status and Occupation frequency. Descriptive statistics methods will be adopted to analyze the data, Also chi-square test was used to test the association between dependent variable (breast cancer incidence) and the set of independent variables. These results are summarized in Tables & Figures (1-3).

Education Level:

Table and Figure (1) shows that the percentage of breast cancer disease patients and non-breast cancer disease patients, according to level of education, the highest level of education attained by most respondents was secondary (26.2%), with 24.2% having Basic level, 10.7 , 2.0% having University and Above university respectively, where 36.9% had no formal education.

Table 4.5 also shows summary statistics and frequencies of Education level between cases control sample. Most of the respondents with less than Basic education (illiterate, khalwa) (37.9%) were case group. Most of the respondents with a Basic education (28%) were control group. Most of the respondents with Secondary school (26.3%) were case group. Most of the respondents with an A university degree and above university 11.1%, 2.5% respectively were case group.

Breast cancer incidence increased with the decreasing level of education attained. Above Sixty percent of those who had Basic and no formal education, this was followed by those who had attained secondary level education (26.3%). breast cancer incidence was least (13.6%) in households where the respondent had University and above university degree.

Table (1) Distribution of respondents according to Education level

Education level	N	%	Type of sample		P-value
			Case %N=198	Control %N=100	
illiterate	80	26.8	28.3%	24%	Chi-Square =2.348 df =5 P =.799
khalwa	30	10.1	9.6%	11%	
Basic	72	24.2	22.2%	28%	
Secondary	78	26.2	26.3%	26%	
University	32	10.7	11.1%	10%	
Above university	6	2.0	2.5%	1%	
Total	298	100%	100%	100%	

Source. SPSS Results based On Breast cancer survey in River Nile State, 2011up to 2015.

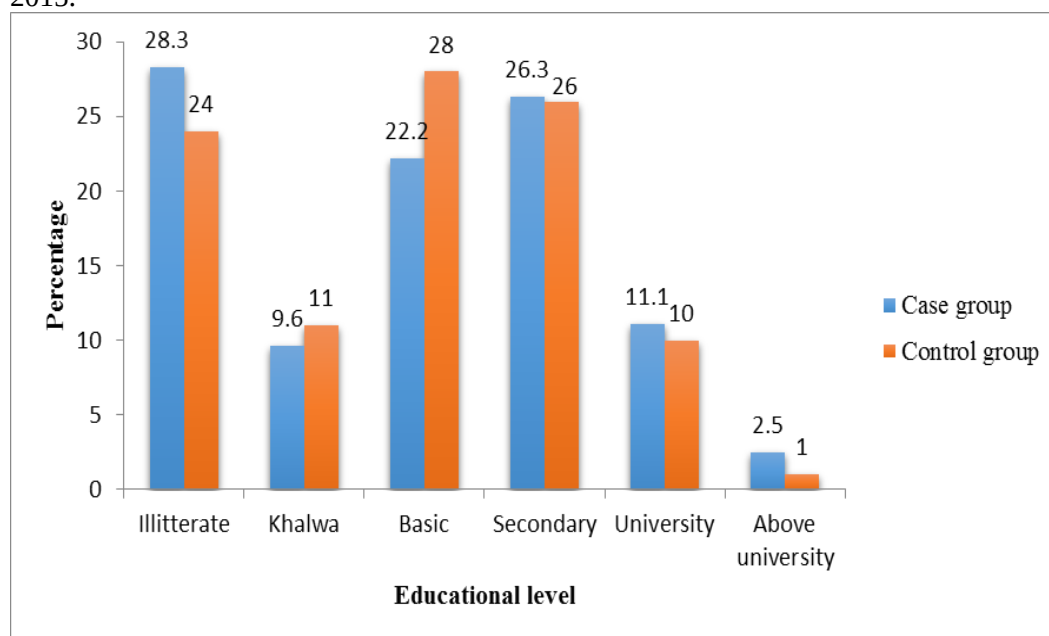


Figure 1. Distribution of respondents according to their Education level

Occupation frequency

Table (1.2) shows the percentage of breast cancer disease patients and non-breast cancer disease patients, according to occupation, the majority of the participants were housewives (63.8%), followed by other (14.8%), Employee (12.1%), Business (4.6%), professional (4.0%), the remaining 0.7% were military.

With regard to breast cancer, Table 4.6 illustrated that there were much differ in percentages between case and control sample. Those who were professional, 2.0% in case group and much differ (8%) in control group. 1.5% of cases were Business while 11% out of control group were Business. The Employee was almost differ case and control group 9.6% for case and 17% for control group. However, big variation was noticed between case and control group in Housewife 71.7% and 48%, respectively.

Breast cancer disease was highest (71.7%) in households where the respondents were Housewife as compared to other types of occupation.

Table 2. Distribution of respondents according to their occupation

Occupation	N	%	Type of sample		P-value
			Case% N=198	Control% N=100	
professional	12	4.0	2%	8.0%	Chi-Square =31.520 df =5 P =0.000
Business	14	4.6	1.5%	11.0%	
Employee	36	12.1	9.6%	17.0%	
Military	2	0.7	0.0%	2.0%	
Housewife	190	63.8	71.7%	48.0%	
Other	44	14.8	15.2	14%	
Total	298	100	100%	100%	

Source. SPSS Results based On Breast cancer survey in River Nile State, 2011up to 2015.

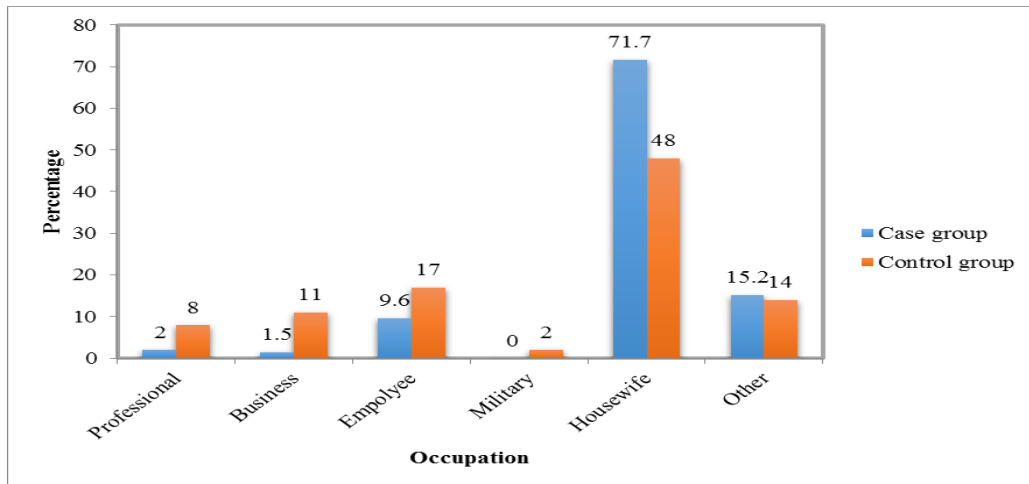


Figure 2. Distribution of respondents according to their occupation

Working status:

Of the 298 respondents interviewed, the majority (63.4%) were not working while (36.6%) were working. Table 3 shows the distribution of respondents according to working status. There was a strong significant association between working status of respondent and breast cancer incidence (Chi = 13.496, df = 1, P = 0.000).

Breast cancer incidence was highest in households where respondents were Not working (70.7%) than where they were working (29.3%). This finding indicates that, breast cancer occurs with higher frequencies among respondents they had not worked.

Table 3 Distribution of respondents according to working status

working status	N	%	Type of sample		P-value
			Case N=198	Control N=100	
Working	109	36.6	29.3	51%	Chi-Square =13.496 df =1 P =0.000
Not working	189	63.4	70.7	49%	
Total	298	100.0	100%	100%	

Source. SPSS Results based On Breast cancer survey in River Nile State, 2011up to 2015.

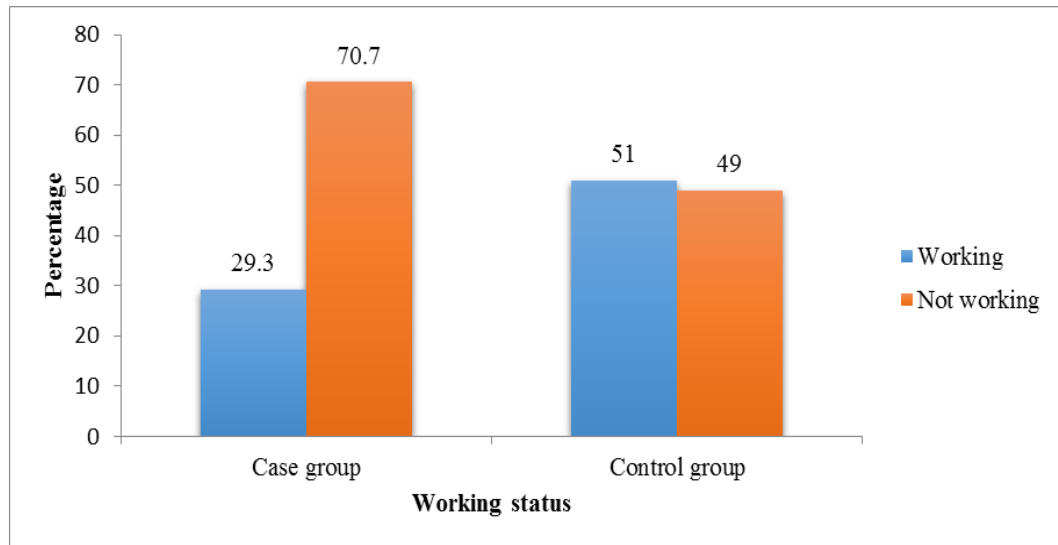


Figure 3 Distribution of respondents according to their working status

Hypothesis

1. Breast cancer incidence and socio-economic factors are dependent.

*Chi-Square Tests of Independence Results for Education level

Table(4) shows the association between Education level and breast cancer disease, Chi-square value equal to 0.799 which is higher than 0.05 in this case we reject the null hypothesis (H_0) and accept the alternative one (H_1), This indicate that there's no statistical significance between Education level and breast cancer disease.

Table (4) Chi-square tests of Independence Results for Education level

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.348 ^a	5	.799
Likelihood Ratio	2.432	5	.787
Linear-by-Linear Association	.000	1	.995
N of Valid Cases	298		

a. 2 cells (16.7%) have expected count less than 5. The minimum expected count is 2.01.

* Chi-Square Tests of Independence Results for occupation

Table (5) shows the association between occupation and breast cancer disease, Chi-square value equal to 0.000 which is less than 0.05 in this case we reject the null hypothesis (H_0) and accept the alternative one (H_1), that mean there is a high significance between occupation and breast cancer disease.

Table (5) Chi-square tests of Independence Results for occupation

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.520 ^a	5	.000
Likelihood Ratio	30.838	5	.000
Linear-by-Linear Association	21.236	1	.000
N of Valid Cases	298		

a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .67

Chi-Square Tests of Independence Results for working status

Table(6) shows the association between working status and breast cancer disease, Chi-square value equal to 0.000 which is less than 0.05 in this case we reject the null hypothesis (H_0) and accept the alternative one (H_1), that

mean there is high statistical significance between working status and breast cancer disease.

Table (6) Chi-square tests of Independence Results for working status

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.496 ^a	1	.000
Likelihood Ratio	13.302	1	.000
Linear-by-Linear Association	13.450	1	.000
N of Valid Cases	298		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 36.58.

b. Computed only for a 2x2 table

Conclusions and Discussions:

Breast cancer is most common type of cancer among the patients in the study area; it is account (30.8%) during 2012-2015 from all malignancy.

In this study, Socio-economic factors related with breast cancer using Descriptive and inferential statistics such as the frequencies and percentages were used to describe the data. Chi-Square tests were performed to establish the association between dependent and independent variables.

In the present study, there is statistical significance between occupation, working status and breast cancer among women in RNS. The study showed that there is no statistical significance between Education level and breast cancer disease, this result is consistent with the result of a study done at two breast tumor centers and Radiotherapy/Nuclear Medicine Hospital, in Baghdad city (Lafta et al., 2013) which showed that education level is not a risk factor of breast cancer among women.

References:

- [1] _Bhurgr Y, et al, Cancer incidence in Karachi, Pakistan: first results from Karachi Cancer Registry. Int. J. Cancer 85: 325, 2000.
- [2] Elsaghir NS, et al., Abortions and breast cancer: record-based case-control study. Int J Cancer 103(5): 676, 2003.
- [3] Calleb, G.O, Breast Cancer Carcinoma at Coast Province General Hospital, Mombasa. East Africa Journal of Surgery. Vol. II. No.2.2006
- [4] IARC Scientific Publications, 1992.IARC, 2002.

- [5] Lamyian, M., et al., Barriers to and Factors facilitating Breast Cancer Screening among Iranian Women; a Qualitative study. East Mediterranean Health Journal.Vol.13.No.5.2007.
- [6] McGrath, I, the International Network for Cancer Treatment and Research (INCTR); Helping Poorer Nations Confront the Growing Problem. Cancer futures. PubMed; 3(1), 55 retrieved from www.thefreelibrary.com, 2004.
- [7] Parkin DM, Bray F, Ferlay J, Pisani P (2001). Estimating the world cancer burden: Globocan. Int. J. Cancer 94: 153.
- [8] Parkin DM. International variation. Oncogene 23: 6329, 2004.
- [9] Salim EI, et al., Understanding Women's Breast Screening Behavior; a Study carried out in South West London; Health Education Journal; Vol. 66 No. 4: 335, 2007.
- [10] Sarhan M. "Breast Cancer in the Eastern Mediterranean Region: A burden with Potential". Paper presented at the international symposium on breast cancer in developing world: meeting the unforeseen challenge to women, health, and equity. Nov. (2) 2009, Boston, 2009.
- [11] Xiao, H. et al. Analysis of prostate cancer incidence using geographic information system and multilevel modeling. J Natl Med Assoc., 99(3), 218, 2007.
- [12] Taylor, E.A. (2005). Economic Costs of Cancer Health Disparities Summary of Meeting Proceedings, Center to Reduce Cancer Health Disparities. US Department of Health and Human Services National Institutes of Health.
- [13] Du, X.L. et al., Racial disparity and socioeconomic status in association with survival in older men with local/regional stage prostate carcinoma: findings from a large community-based cohort. Cancer, 106(6), 1276, 2006.
- [14] Albain, K.S., et al. Racial disparities in cancer survival among randomized clinical trials patients of the Southwest Oncology Group. J Gen Intern Med., 101(14), 984. Epub 2009 Jul.