

## Impact of an Educational Programme on Knowledge of breast cancer Patients treated with radiotherapy

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### **Abstract:**

#### **Background**

Radiation therapy is highly targeted highly effective way to destroy cancer cell that may linger after surgery and this will reduces recurrences, many patients have misperception and great fear about radiation therapy and its side effect .in addition there is marked lack of knowledge among patients regarding the importance of radiation therapy and benefit to start the treatment early and not to interrupt the course of treatment. For all these above mentioned reasons, this project selected to assess the effect of education in reducing side effect of radiation therapy for breast cancer patient treated with radiotherapy .

#### **Objective:**

To study the impact of educational program on women with breast cancer regarding management of acute side effects of radiotherapy in order to reduce the complications.

#### **Methods:**

The study was conducted in radiotherapy out patient's clinic of national cancer institute- university of Gezira Wadmadni in Sudan. The participants were patients with breast cancer on radiotherapy therapy. The total number of patients attending the hospital during the study duration was 600 patients. The sample size enrolled in the study was 100patients. The sampling method used was the non-probability convenience sampling. The participants' knowledge about different aspects of radiotherapy and it's side effect were assessed before and after implementation of a structured education programme .

#### **Results**

The participants' knowledge about the indication of radiotherapy, the side effect and compliance with the session of treatment were improved significantly after implementation of the educational programme. Moreover, their knowledge.

#### **Conclusion**

The educational programme had a statistically significant positive impact on the participants' knowledge and practice concerning the side effects, and management of breast cancer as physical, psychological activities ,life style, and social role performance . Construction and implementation of relevant educational programmes can improve the managing strategy and its outcome.

**Keywords:** Keywords: health educational program, breast cancer, radiotherapy side effects.

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### **I. Introduction**

Cancer is a leading cause of death worldwide it accounted for 7.6 million deaths (around 13% of all deaths) in 2008, Lung, stomach, liver, colon and breast cancer causes the most cancer deaths each year, the most frequent types of cancer differ between men and women, about 30% of cancer deaths can be prevented (WHO, 2011). Breast cancer has the highest incidence rate among women's cancers and it is the second leading cause of women's cancer deaths (DeSantis et al. 2011a, 2011b).

In 2008 it was estimated that worldwide, 1.38 million women were diagnosed with breast cancer, accounting for around a tenth (10.9%) of all new cancers and nearly a quarter (23%) of all female cancer cases (Globocan 2008). An estimated 12.7 million new cancer cases occurred in 2008, of which about 715,000 new cancer cases resulted in 542,000 deaths in Africa 1.

These numbers are projected to nearly double to 1.28 million new cancer cases and 970,000 cancer deaths by the year 2030. This increase in cancer cases in Africa is attributed to both aging and population growth, and adoption of lifestyles associated with economic development, such as smoking, unhealthy dieting,

and a lack of physical activity 1,2 cancer in Sudan A total of 3,439 of breast cancer infections were reported in 2014, according to the latest statistics of the World Health Organization (WHO). cancer incidence has been growing at an average annual rate of 0.061 over the last five decades 1967–2010 and is likely to continue to grow . According to Globocan estimates, the top most common cancers in both sexes are breast, non-Hodgkin lymphoma, leukemia, esophagus, and colorectum [2].

During 2009–2010, 6771 new cancer cases were registered. Of those, 3646 (53.8%) cases were in women and 3125 (46.2%) were in men. A large proportion of breast cancer patients receive adjuvant radiation therapy (RT) in either the breast conservation or the postmastectomy setting to improve locoregional recurrence rates and overall survival.2,3

Adjunctive irradiation is recommended as an integral part of the primary management of patients with early breast cancer. Radiotherapy has been used as an adjuvant to surgery since the 1930s, and today it is the most effective postoperative treatment for prevention of loco regional recurrences (Rutqvist 1996; Overgaard et al. 1997; Ragaz et al. 1997). The aim of radiation therapy is to achieve tumor regression or symptom relief. This can be done by delivering a precise dose, to a well-defined tumor or target area, while at the same time keeping the side effects, due to an effect on surrounding normal cells, to a minimum (Leibel and Phillips 1998

The side effects of radiation therapy are usually due to complications induced in normal tissues included in the treatment area, and may be acute or late. The acute effects are found in tissues with a high cell turnover rate. Surrounding organs and tissues included in the treatment area for breast cancer patients include skin, remaining breast tissue, lung, heart and brachial plexus. Early skin alterations may include erythema, dry desquamation with pruritus and moist desquamation. Late skin alterations are progressive and include hyperpigmentation, telangiectasia, ulceration and fibrosis (Wittes 1991; Sitton 1992; Rose, Schrader-Bogen, Korlath, Priem and Larson 1996).. It is the responsibility of the nurse to identify the breast cancer patient's needs, make appropriate nursing diagnosis and initiate plans for care (WHO, 2011; Salem et al., 2010).

Adverse effects of radiotherapy can be severe and can have a significant impact on a person's quality of life., there is a need for patients to be informed about effective self-care strategies to manage treatment adverse effects. Advice for patients needs to be based on evidence The educational programme took into account the different items of the knowledge domain and improved them through implementation of a well structured educational programme.

## II. Methods

The study was conducted at National Cancer Institute NCI which is located in Wad Madani in the Gezira state ( second state in Sudan ) NCI is second center after Radioisotopes Centre of Khartoum( RICK)in Sudan. The participants were patients with breast cancer on radiotherapy. The sample size enrolled in the study was 100patients. The sampling method used was the non-probability convenience sampling. The participants' knowledge about different aspects of radiotherapy was assessed before and after implementation of a structured educational programme .

## III. Results

The ages of the participants extended from 20 years to more than 70 years.

**Table 1 Showing the Participants' Response in Pre and post-tests about the aim of radiotherapy**

Pre test				Post test			
Internal	External	1&2	Idont know	Internal	External	1&2	Idont know
24	44	15	17	01	06	79	15
24	44	15	17	01	06	79	15
%	%	%	%	%	%	%	%

  

T. test	Paired Differences				t	df	Sig.(t-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% confidence interval of the difference				
				Lower Upper				
	-.81000-	1.01200	.10120	-1.01080-	-.60920-	-8.004-	99	.000

The participants' knowledge about the aim of radiotherapy (table 1) improved significantly after the implementation of the educational programme ( ).

**Table 2 Showing the Participants' Knowledge in Pre and post- tests regarding type of radiotherapy**

Pre test				Post test			
Internal	External	1&2	Idont know	Internal	External	1&2	Idont know
24	44	15	17	01	06	79	15
24%	44%	15%	17%	01%	06%	79%	15%

T. test	Paired Differences						t	df	Sig .(t-tailed)
	Mean	Std. Deviation	Std . Error Mean	95% confidence interval of the difference					
				Lower	Upper				
	-.81000-	1.01200	.10120	-1.01080-	-.60920-	-8.004-	99	.000	

The participants' knowledge about the types of radiotherapy (table 2) improved significantly after the implementation of the educational programme ( ).

**Table 3 Showing the Participants' Knowledge in Pre and post tests about when starting radiotherapy**

Pre test				Post test			
Before wound healing	after wound healing	no matter at any time	Idont know	Before wound healing	after wound healing	no matter at any time	Idont know
14	12	25	49	02	89	05	04
14%	12%	25%	49%	02%	89%	05%	04%

T. test	Paired Differences					t	df	Sig .(t-tailed)
	Mean	Std. Deviation	Std . Error Mean	95% confidence interval of the difference				
				Lower	Upper			
	.98000	1.14574	.11457	.75266	1.20734	8.553	99	.000

The participants' knowledge about the time of starting radiotherapy improved significantly after the implementation of the educational programme (P-value = 0.000) (Table 2).

**Table 4 Showing the Participants' Response in Pre and post-tests about what will happen if you don't have the treatment**

Pre test			Post test		
Risk of recurrence of the disease	Not there is no risk	Idont know	Risk of recurrence of the disease	Not there is no risk	Idont know
12	51	37	88	08	04
12%	51%	37%	88%	08%	04%

T. test	Paired Differences					t	df	Sig .(t-tailed)
	Mean	Std. Deviation	Std . Error Mean	95% confidence interval of the difference				
				Lower	Upper			
	1.09000	.79258	.07926	.93274	1.24726	13.753	99	.000

The participants' knowledge about their expectations if they didn't have radiotherapy improved significantly after the implementation of the educational programme

**Table 5 Showing the Participants' Response in Pre and post -tests regarding information for your first**

Valid	Pre – test		Post test	
	Frequency	Percent	Frequency	Percent
<b>Yes completely</b>	25	25%	57	57%
<b>Yes to some extent</b>	35	35%	36	36%
<b>No</b>	40	40%	7	7%
<b>Mean</b>	33.3	33.3%	33.3	33.3%

**appointment is it clear**

The participants' information improved significantly after the implementation of the educational programme

**Table (6): the pre and the post response relevance to statement describe your feeling**

**A comparison between Knowledge pre and post- test regarding statement describe your feeling**

\* **There are significant statistical differences between the Pre and the Post response**

Valid	Pre – test		Post test	
	Frequency	Percent	Frequency	Percent
<b>I supported the use of radiotherapy</b>	42	42%	68	68%
<b>I disagreed with the use of radiotherapy</b>	24	24%	1	1%
<b>NO strong feeling</b>	33	33%	31	31%
<b>No previously thought about use of radiotherapy</b>	1	1%	00	00%
<b>Mean</b>	25	25%	33.3	33.3%

#### **IV. Discussion**

The notion of patient education has shifted the centre of patient management from physician domination to physician-patient partnership approach<sup>3</sup>. The role of the patient is widely accepted as an active partner in healthcare, and not just a passive object of diagnostic testing and medical treatment. For decades, educational programmes for patients especially in chronic diseases were known to improve the management outcomes<sup>4</sup>. This study examined how educational intervention could increase the frequency of self-care behaviors used by women receiving radiotherapy for breast cancer. As an outcome of empowering patient education patients can reach a better quality of life (Funnell et al. 1991, Gibson 1991, Corrigan 1999, Falk-Rafael 2001, Leino-Kilpi et al. 2005) and have less anxiety and have control over their life situation in spite of illness (Treacy & Mayer 2000) as well as increased self-care (Chandler 1992).

The educational programme in this study took into consideration the different knowledge domains as an attempt to improve them; a situation which was significantly fulfilled. The knowledge about aim of radiotherapy among the study participant was good by 21% in pre intervention phase and the finding increase up to 83% in post –test. And this result was of clinical importance because their knowledge towards the aim of radiotherapy helps the patient in coping with Radiation

Regarding client's knowledge concerning starting of radiotherapy, the result revealed improvement in client's knowledge after the implementation of health promotion program

The participants' knowledge about the time of starting radiotherapy improved significantly after the implementation of the educational programme (P-value = 0.000) (Table 3). This reflect their understanding the importance of starting the treatment as early as possible to achieve it is benefit.

The participants' knowledge about their expectations if they didn't have radiotherapy improved significantly after the implementation of the educational programme which is satisfactory response and it means Radiation therapy is become more acceptable modality of cancer treatment (Table 4).

The statistically significantly result in the association between receiving educational programme we notice here in (table5) information for the first appointment is became more clear than pre- test and this support theory of Breast cancer patients express strong, unmet needs for education, information, and intervention for side effects (Collins et al. 2004, Lee & Hawkins 2010, Levangie et al. 2010, Binkley et al. 2012).

Moreover, Wengstrom et al. (2001) found that breast cancer patients actively sought information to reduce the fears they had about radiotherapy. Regarding statement describe feeling toward using radiotherapy after the educational programme the result revealed improvement in client's knowledge (table 6).

An increased knowledge level (Wong et al. 2004, Suhonen & Leino-Kilpi 2006, Johansson et al. 2007, Heikkinen 2011) leads to better sufficiency of knowledge, which is the outcome of empowering patient education (Heikkinen 2011) as well as positive learning experiences (Johansson et al. 2007), and an experience of being better informed (Under-Kraan et al. 2009).

The educational programme designed and implemented in this study improved significantly the entire knowledge of the patients with breast cancer on radiotherapy management. Knowledge is the key for gaining control over one's situation. The patient understands with knowledge and consciousness his/her state of change, which improves his/her experience of self-control (Kettunen et al. 2001, 2002a, 2002b, 2006). The success of the educational programme for patients on radiotherapy therapy can be a surrogate marker for the success of educational programmes on other radiotherapy.

The compliance with radiotherapy session enables the treating physician to undertake a successful follow up of the patients. The knowledge gap in this study can be bridged by simplifying the information and emphasizing on its importance.

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