Comparison of Informational Needs among Newly Diagnosed Breast Cancer Women Undergoing Different Surgical Treatment Modalities

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Abstract:

Breast cancer is the most commonly diagnosed cancer for women worldwide. Almost all women with breast cancer will have some type of surgery in the course of their treatment either breast conservation surgery or modified radical mastectomy. Informational needs for such types of patients are critical step in providing high quality care. *Aim:* Comparing the informational needs among newly diagnosed breast cancer women with different surgical treatment modalities. *Sample:* A purposeful sample of 100 adult women with breast cancer undergoing surgery divided into two equal groups according to type of surgery. *Design:* Comparative descriptive design was utilized. *Setting:* This study was conducted at National Cancer Institute affiliated to Cairo University. *Tools:* Structured Interview Questionnaire and The Arabic translated version of Toronto Informational Needs Questionnaire of Breast Cancer, scored with likert scale as low, moderate and high important informational needs. The study findings revealed that newly diagnosed women with breast cancer undergoing surgery either breast conservation surgery or modified radical mastectomy were different in regard to age, marital status, residence, education, income and type of breast cancer. Although both groups had informational needs in different rates related to disease, investigative tests and treatment; they expressed that the highest informational needs was related to physical information, while the least important was related to psychosocial needs. *Conclusion:* information related to physical, disease, investigative tests and treatment are important needs for newly diagnosed breast cancer women regardless their type of surgery.

Key words: newly diagnosed , breast cancer women, informational needs, different surgical treatment modalities.

1. Background:

Breast cancer is the most commonly diagnosed cancer for women worldwide. It affects all aspects of an individual's life (Wu, Liu & Chung, 2012). Breast cancer treatment is dependent on the diagnosis, for some women may be surgery alone, whereas others may require a combination of local treatments to control local disease and systemic treatment to combat any micro metastatic disease (Dolinsky & Hill-Kayser, 2008). Local treatments consist of surgery and radiotherapy; there are two options; breast conserving surgery (BCS) which referred to wide excision, quadrantectomy, or partial mastectomy, and breast conserving therapy consists of breast conserving surgery in conjunction with radiation therapy of the affected breast. Systemic treatments include chemotherapy, hormonal and biological therapy (Laronga, 2012 and Smith, 2006).

A mastectomy is used as the primary treatment to reduce tumor size, and allows for systemic therapy to be more effective. There are two types: a modified radical mastectomy (MRM) and total mastectomy. The MRM is the most common surgery used for the treatment of breast cancer. It involves removal of the entire breast, some fatty tissue, including the nipple, areola, and pectoral fascia while preserving the pectoralis major; in addition, axillary lymph nodes are removed. A total mastectomy involves the same procedure with the difference being preservation of the axillary lymph nodes and pectoral muscles; it is commonly used for high risk women who choose to have prophylactic surgery or women who have a recurrence following a lumpectomy and radiation (Lockwood, 2009).

Patients' information needs are substantial; women with breast cancer require information to help them manage their illness (Holmes, 2008). Complete and reliable information is important to them both during and after treatment (Rutten, Arora, Bakos, Aziz, & Rowland, 2005). It assists patients in making treatment decisions, managing immediate effects of treatment, and reducing feelings of vulnerability. It can also increase health competence and give patients a sense of control over the illness (Chantler & Mortimer, 2005). Graydon et al., (1997) have postulated five categories for information needs among breast cancer patients: 1) nature of disease, its process and prognosis, 2) cancer treatments, 3) investigative tests, 4) preventive, restorative, and maintenance physical care and 5) patient's or family's psychosocial concerns.

Cancer patients during their illness have a variety of information sources available to obtain the information needed to learn, decide, adjust and cope. Medical professionals are expected to be primary and

important sources of information for the patients (Raupach & Hiller 2002). In addition to conveying oral information during interactions with patients, health care professionals present their knowledge to consumers through pamphlets, web sites, medical books and articles in journals (Katz, Nissan, & Moyer 2004). Cancer patients may supplement the information obtained from these sources with that from various non-medical information sources: family and/or friends, fellow cancer patients, support groups, magazines, television, radio and newspapers (Raupach & Hiller 2002). Health professionals are concerned with the amount and type of information given to a patient with cancer according to patients' stated preferences; unfortunately unless invited to ask directly, patients rarely raise important questions during a consultation. Many patients assume that the doctor should told them everything relevant, others worry that they will appear foolish if they reveal their ignorance by asking questions, and some feel that they have already taken up too much of the busy doctor's time (Jenkins, Fallowfield & Saul 2001).

Oncology nurses can play a significant role in understanding women's individual need for information when they are faced with a new diagnosis of breast cancer (Holmes, 2008) and they should consider the amount of information given to avoid confusion and anxiety (Alexander, Fawcett, & Runciman 2006). Hence, assessing needs for those patients is a critical step in guiding care planning, providing high quality care and achieving cancer patients' and families' satisfaction and coping (Holmes, 2008). Therefore, this study was conducted to compare the informational needs among newly diagnosed breast cancer women with different surgical treatment modalities.

1.1. Significance of study:

Breast cancer now occupies position number one in all countries of the Arab world. Its incidence is increasing in the developing world due to increased life expectancy, increased urbanization and adoption of western lifestyles (World Health Organization, 2010). It constitutes 13–35% of all female cancers, almost half of patients were below 50 (El-Saghir et al., 2011). Breast Cancer Foundation of Egypt (BCFE) (2013) reported that the percentage of women breast cancer among cancer cases accounts to 37.5%. It is the commonest malignant neoplasm among Egyptian females with increasing rate. National Cancer Institute- Cairo University (2009) specified that breast cancer was spreading rapidly among women in Egypt by 24 cases per 100,000 of women.

Considering the large number of women with breast cancer, researchers have begun to pay attention to the needs of women with breast cancer during the survivorship period. Moreover, breast cancer patients' needs for information in relation to illness have not been sufficiently studied. Holmes (2008) mentioned that women were found to have high information needs and they felt that often the individualized nature of their needs was not given the attention they required. As a result of inadequate understanding of patient needs, both healthcare costs and unnecessary suffering increase. Hence, needs assessment are required to guide care planning, in part because many patients do not communicate their needs.

Patients with cancer who had been adequately informed about their illness and treatment were better able to reduce their feeling of distress (Harris, 2003). They found that there is incongruence between the information that women want and the information that is given to them by health care professionals. Accordingly, it is important to identify the informational needs of women newly diagnosed with breast cancer especially after surgery in order to acquaint health care team with the main areas of unmet informational needs among women, and in return, it will consequently improve their conditions.

1.2. Operational definition:

Surgical treatment modalities are two different mastectomy surgical treatments which are:

- Breast conserving surgery (BCS): referred to wide excision, quadrantectomy, or partial mastectomy.

- Modified radical mastectomy (MRM): referred to removal of the entire breast, some fatty tissue, including the nipple, areola, and pectoral fascia while preserving the pectoralis major; in addition, axillary lymph nodes are removed.

2. Subjects and Methods

The present study was conducted with the aim of comparing the informational needs among newly diagnosed breast cancer women undergoing different surgical treatment modalities. To fulfill the aim of this study, the research question was formulated:

1- What are the most and least important informational needs of newly diagnosed breast cancer women undergoing breast conservation surgery?

2- What are the most and least important informational needs of newly diagnosed breast cancer women undergoing modified radical mastectomy?

2.1. Research Design: A Comparative descriptive design was utilized in this study.

2.2. Setting: This study was conducted at National Cancer Institute affiliated to Cairo University. It is one of the largest specialized institutions in cancer treatment in Egypt.

2.3. Subjects: A purposeful sample of 100 adult women with breast cancer undergoing surgery before scheduling the type of adjuvant therapy divided into two equal groups (50/each) according to type of surgery constituted the study' subjects. The first group for subjects with breast conservation surgery (BCS) and the other one for subjects with modified radical mastectomy (MRM) meeting the following criteria of inclusion: women diagnosed with breast cancer for first time; aged from 20 to 65 years; were awaiting hospital discharge after surgery, moreover, they will undergo chemotherapy or radiotherapy post surgery, and accept to participate in the study.

2.4. Tools: Data of this study was collected using the following tools:

2.4.1. Structured Interview Questionnaire (SIQ), was designed by the researchers based on literature review, including two parts: *the first part* includes data related to subjects' characteristics namely; age, marital status, residence, etc. and *the second part* includes medical related data such as type of breast cancer, co morbidities, previous history of surgery, etc.

2.4.2. **The Toronto Informational Needs Questionnaire of Breast Cancer (TINQ-BC),** was developed by Galloway et al. (1997), to elicit women's perception of their informational needs related to their experience of breast cancer. TINQ-BC is comprised of a 52 item scale, measuring the following five subscales of informational need: *Disease*, *Treatment*, *Investigative Tests*, *Physical* and *Psychosocial* needs.

▪ Disease (9 items): assess information need about the nature, process and prognosis of disease.

▪ Treatment (16 items): assess information need about various cancer treatments, how they work, performed, sensations that may be experienced and possible side effects.

▪ Investigative tests (8 items): assess information need about procedures used to assess the extent of disease, how, why they are done and sensations that may be experienced.

▪ Physical (11 items): assess information need about the preventive, restorative and maintenance care that may be needed as a result of the disease and treatments.

▪ Psychosocial (8 items): assess information need about how to handle the patients' or their families' feelings.

Construct and content validity were established and internal consistency (reliability) using cronbach's alpha were: Disease 0.91, Investigative tests 0.94, Treatment 0.95, Physical 0.83, Psychosocial 0.89, and the total 0.97 was considered satisfactory; besides no item was recommended to be removed. Translation into Arabic language, then the content validity was tested through five experts in the field of nursing; the Arabic version was then piloted on 10% of patients. The piloted sample was excluded from the final study sample.

* Scoring system of **TINQ-BC**

Each item was scored as a 5-point Likert Scale as: 1 = Not important, 2 = Slightly important, 3 = Moderately important, 4 = Highly important and 5 = Extremely important. Total score with minimum of 52 and maximum of 260, the higher scores represent higher information needs. Statistical presentations of data was derived from collapsing the original scale to 3 scale, 1st =not important + slightly, 2nd = moderately important, and 3rd = highly + extremely important. The score for the total of each subscale and the general total were evaluated as value qualitative percent as follows: less than 50% is considered low important, 50% to 70% is considered moderately important, more than 70% is considered highly important (which means highly prioritized informational needed by patients).

2.5. Procedure:

An official permission was obtained from the concerned departments to conduct the proposed study, then researchers met the patients who fulfilled the inclusion criteria two times (1st time was preoperatively, and 2nd before discharge). During First time, the purpose, nature of the study, and tools were explained and written consent for participation was taken from educated patients and oral consent was taken from illiterate patients. The Structured Interview Questionnaire was read, explained and choices of patients' answers were recorded by the researchers. Patients' files were revised to complete the needed data. During second time, prior to discharge

since the patients became mostly aware with their problems and developed a seeking behavior for more information in order to adapt with their current position; the Toronto Informational Needs Questionnaire of Breast Cancer choices and answers from patients were recorded by the patient. Illiterate patients, received assistance from the researchers in reading the scales with extreme effort from the part of the researchers in order not to interfere with the assessment. The estimated time spent with each patient for collecting data lasted between 20-30 minutes. Data for the current study were collected through the period from May 2010 till October 2010.

3. Results

The data obtained through the designed and adopted tools were tabulated, analyzed and presented in the following parts:

3.1. Subjects' Characteristics

The study revealed that patients' age ranged between 20 to above 60 years with mean age of BCS, and MRM group were 37.98 $\pm$ 7.68, and 50.86 $\pm$ 9.74 respectively. The majority 86% of BCS and only 62% in MRM group were married. Considering the residence the majority of the BCS 92% and only 58% of MRM were coming from urban areas; and 68% BCS had secondary and university level of education, while 66% in MRM group were illiterate and can read & write. The majority of both groups (74% and 82% respectively) were housewife, and 60% of BCS and only 34% of MRM had sufficient income. Data revealed that there was a statistical significant difference between the two groups as regards to age X^2=71.93, marital status X^2=15.07, residence X^2= 15.41, education X^2= 31.29, and income X^2= 13.30, with p.0.001.

3.2. Medical related data

Table (1) shows that the majority of both groups were having no previous illness and no previous surgeries with percentage of 84% compared to 64%, and 90% compared to 84% respectively. However, the majority of MRM group 86% was having invasive carcinoma, compared to 40% of BCS group. The majority of BCS group 94% was having no menopause incidence, compared to 36% of MRM group. The same percentages of both groups (78%) were having no previous breast cancer incidence in family. The majority of both groups BCS & MRM were having breast mass 90% and 70% respectively; and 66% of BCS compared to 32% of MRM their duration from diagnosis to surgery less than two months. Regarding stage of disease at time of diagnosis 60% of BCS was diagnosed at first stage, while 62% of MRM was diagnosed in the second stage. There were statistical significance differences between the two groups in all medical related data except in previous history of surgery and incidence of breast cancer in family.

3.3. Relation between total information needs and surgical treatment modalities of breast cancer:

Table (2) presents the majority of both groups (88%) express high and moderate importance for physical informational needs. However, the majority of BCS (90%) as well as MRM groups express low importance of information needs related to psychosocial; there was no statistical significance difference between the two groups regarding physical and psychosocial informational needs. The highest frequency of BCS group expresses moderate and high importance for information needs related to treatment 62% & 26%; compared to 14% & 16% in MRM group. In BCS group, there was 62%, compared to 18% of MRM group, expressed moderate and high needs for investigative test information. It also shows that 64% & 26% of BCS group compared to 42% & 4% of MRM group expressed moderate and high importance of information related to disease. There was a statistical significant difference between two groups regarding disease, investigative tests, and treatment informational needs, (25.47, 20.37, and 36.86 with p 0.00 respectively).

3.4. General information related to causes of breast cancer and its sources:

Figure (1) shows that 24% of BCS group compared to half of MRM group didn't know the causes of disease. It also shows that double percentage of BCS group compared to MRM group relate the causes of disease to hereditary and food. There were statistical significant differences between the two groups (X^2 = 12.48, p=0.05) as regard to information related to the causes of breast cancer in their case. Figure (2) presents that 90% of BCS group and only 14% of MRM group derived their information from popular media and magazines. There was high statistical significant difference between the two groups X^2 =12.35, p<0.002.

3.5. Informational needs and demographic and medical related data of study groups:

Table (3) presents a statistical significant difference among BCS group between total information needs and education level (F=22.96, p.0.00). While, in MRM group, there was a statistical significance difference

between total information needs and age, residence and education level (F= 2.89, p 0.03, F=7.49, p.0.00, and F=15.64, p.0.00 respectively).

Table (4) shows statistical significance difference between total informational needs and comorbidities, nature of 1st complaints, and time from diagnosis to surgery among BCS group (F=8.42, p.0.00, F= 12.32, p.0.00, and F=10.71, p.0.00 respectively). While it shows a significant difference only in total informational needs and history of surgery (F=3.89, p.0.05) among MRM group.

4- Discussion:

The discussion will be presented in the following four parts.

Part I: Subjects' characteristics and informational needs:

The study findings showed that the majority of subjects in both groups were above 30 years. Half of the BCS group was between 30 to 40 years old and none above 60 years old. While the majority of MRM group were above 40 years, and more than one fifth aged 60 years and over. Australian Institute of Health and Welfare & Cancer Australia (2012) found that about quarter of new breast cancer cases were younger than 50 years. This result congruent with El-Saghir et al. (2011) study findings that breast cancer is the most common cancer among women with age around 50 years. Abdallah (2011) confirmed that in Egypt, the median age at diagnosis for breast cancer is ten years younger than in the United States and Europe. Tracee (2009) supported that breast cancer risk increases with age. Dolinsky, & Hill-Kayser (2008) concluded that the most important risk factor for development of breast cancer is increasing age.

The findings revealed a statistical significant difference between total information needs and age among MRM group, while no statistical significant difference among BCS group. This could be explained that the newly diagnosed women in BCS group were younger than women in MRM; and the younger women are in extreme need for more information. This result was consistent with Ankem (2006) who found that younger women had a greater need for information than older women. The current study discovered no statistical significance difference between total information needs and marital status in both groups (BCS & MRM). This could explain that highest frequency of both groups was married, this comes in agreement with Abd El Razik (2010), in a study results that two thirds of participated patients were married. The interpretation of these findings could be related to the subjects' educational level in BCS group is higher and their age is younger than in MRM group; therefore, they want to know more about their disease information.

The highest percentage of both groups were living in urban areas, it might be due to the more exposure to regional environmental air pollutants. This finding is congruent with Pakseresht et al., (2009) in a study about «Risk Factors with Breast Cancer among Women in Delhi», who stated that, large number of breast cancer patients was living in urban areas. These findings were supported by Dey et al., (2011) who studied urban-rural differences in breast cancer incidence in Gharbiah governorate in Egypt and concluded that the incidence rate of breast cancer was three to four times higher in urban areas than in rural areas across all age-groups. Higher incidence of breast cancer was also seen in the more developed districts. The same authors explained that might be related to higher exposure to xenoestrogens, as well as other endocrine disruptors and genotoxic substances.

A significant difference was found between total information needs and residence among MRM group compared to no significant difference of the same aspect in BCS group. This could be because of women in BCS group who coming from urban areas were more educated and want to know more about their cases than MRM group. This result was consistent with Gopal, et.al (2005) in a study comparing between the information needs of women newly diagnosed with breast cancer in Malaysia and the United Kingdom, they found that Malaysian women emphasized the need for more education compared to United Kingdom women. However, this result was expected as the patients' residence could play a vital role in individuals' knowledge level and consequently their information needs.

The highest frequency in BCS group were educated (secondary and university), while in MRM group cannot read and write. A significant difference was found between education and total information needs in both groups, this could reflect the current state of Egyptian patients that educated patients have more awareness to their health conditions than non-educated and want to know more about their health status. However, Abd El Razik (2010), study revealed that the highest percentage of the breast cancer was illiterate regardless the type of surgery. On the same line, Ankem (2006) mentioned that not all patients are alike in the amount of information they need and the more educated cancer patients showed a greater need for information.

Part II –Medical related data and informational needs:

The existing study displayed that the highest frequency of BCS group had in situ carcinoma, while the majority of MRM group had invasive carcinoma, this reflect the nature of breast cancer type. The majority of BCS group have no previous illness but more than one third of MRM group have comorbidities as hypertension, DM and renal disease, this could be because most of MRM group age is above 50 years, which expected to have other diseases. The majority of BCS group have no menopause incidence, this finding is in line with Salaudeen, Akande, & Musa (2009) who reported that the majority of breast cancer female patients were premenopausal. In MRM group approximately two thirds have menopause incidence this could reflect their age above 50 years as predisposing factor for the nature of disease, this coincide with Dey et al., (2011) who mentioned that one of the risk factors of women's breast cancer is the age of menopause. Dolinsky, and Hill-Kayser (2008) reported that breast cancer risk is affected by the age when a woman begins menstruating. There was no statistical significance difference between total information needs and menopause incidence in both groups.

It was surprising to find the same percentage of no incidence of breast cancer in the family among the two groups and about quarter of both groups have family history of breast cancer. This goes in line with American Cancer Society (2012) and Azaiza and Cohen, (2006) who mentioned that breast cancer increases with an increase risk factor including family history. McTiernan (2003) pointed out that any woman with a family history of breast cancer will be at increased risk for developing breast cancer herself.

The nature of patient complaints for the first time was breast mass among both groups in the current study, as it may be the most commonly presenting complaint, In this respect, Sandhu, Sandhu, Karwasra, & Marwah (2010) in their study about «Profile of Breast Cancer Patients at A Tertiary Care Hospital in North India» emphasized that lump in the breast was a dominant symptom. Unexpectedly the duration from diagnosis to surgery among MRM group is 2 months and more, and their stage of disease at time of diagnosis was second or third stage, this might be directed to older house wives Egyptian culture for seeking medical advice at late stage; therefore this could explain the time consumed to confirm diagnosis. Yi et al. (2007) study findings were consistent as more than half of the studied group was diagnosed at the second stage.

Part III - Surgical treatment modalities and informational needs.

The majority of BCS group expresses moderate and high importance; while MRM group expresses low and moderate importance of information needs related to disease and treatment. This could reflect the awareness of the BCS group as most of them are younger, married, educated and coming from urban areas; lead them to seek information to understand their condition. Ankem (2006) coincided that more educated and younger cancer patients wanted more information than older patients. The BCS group expresses moderate level of importance; while the majority of MRM expresses low importance of informational needs related to investigative test. Graydon et al., (1997) concluded that all cancer breast women wanted information about their disease, treatments and investigative tests. Both groups express the moderate and high importance level of information related to physical needs. This could be due to as adult, married, house wives females are responsible for family, and the disease might affect negatively upon their physical condition, therefore the physical aspect is important to them. This result goes in the same line with Hwang and Park (2006), who mentioned that cancer patients postoperatively are more likely to report some needs both in the physical and daily living domains.

Unexpectedly; both groups express low important level of information related to psychosocial needs. This could be explained in the scope of the Egyptian culture; when a family member was diseased; psychosocial support was provided to accept the disease condition. Furthermore, the time of data collection was before discharge where the patients are still protected and not in contact with other people outside. In contrary, Hegel (2012) found in a study that almost half of newly diagnosed patients with breast cancer are found to have clinically significant emotional distress or symptoms of psychiatric disorders before therapy is begun. Megumi, et al., (2010) reported that advanced breast cancer patients had many unmet needs, most of the common unmet need items belonged to the psychological domain and information domain.

Regarding ranking of importance to information needs, which are prioritized according to the valued importance for the study participants, patients of both groups were in more agreement in rating information that the physical need is the first, and the psychosocial need is the last, while they are different in ranking needs related to treatment, disease, and investigative tests. Galloway et al. (1997) in their study found that women expressed that information about their disease was first, treatment was second, and investigational tests (both procedure and results) was third need.

Part IV - Sources of information:

Half of MRM group did not know the cause of cancer compared to about one quarter of BCS group, while the other half of the MRM, and about three quarters of BCS group outlined hereditary, food, hormonal therapy, obesity, and psychological stress as the possible causes of cancer. The majority of the BCS group's source of information is from popular media and magazines; this could reflect the effect of mass media role in the awareness of Egyptian women about the disease. Similar observation was reported in Iran by Montazeri et al., (2008) that most of the respondents' source of information was electronic media (television and radio). While only one tenth of MRM group's source of information from magazines, this could be explained that most of MRM group were above 50 years old, with low educational level and house wives with insufficient income. Talosig-Garcia & Davis (2005) concluded that the sources of cancer information in their study were books, brochures, and pamphlets, then health professionals and spouse or partner, family members, friends, and minority of breast cancer patients were using the Internet for cancer-related information at a very low rate.

5. Conclusion:

The study findings concluded that newly diagnosed breast cancer women with different surgical treatment modalities had different levels of informational needs' importance. Ranking of information needs that are highly important among BCS group are physical, disease, treatment, investigative tests, and finally psychosocial needs. While the ranking of informational needs in MRM group are physical, treatment, disease, finally investigative tests as well as psychosocial needs. Physical information needs was the highest important and psychosocial information was the least important for both groups. The findings of a woman's preference of information are congruent with the theoretical perspective that people in threatening situations will seek information to understand what is happening to them.

It was found that educational level in both groups had a statistical significant difference regarding total informational needs. No statistical differences in menopause incidence, incidence of disease in family, and disease stage at diagnosis regarding to total information needs in both groups.

Both groups outlined hereditary, food, hormonal therapy, and psychological stress as the possible causes of cancer. The source of information in BCS group is from popular media and magazines; while MRM group's source of information from the family.

The study results provide nurses with some direction to what type of information they should give to women undergoing surgical treatment for breast cancer.

6. Recommendation:

Based on the results of the current study, the following recommendations are suggested:

Specific patients' information needs might assist nurses in tailoring their care plan to meet patients' actual requirements. Information provision should be tailored to individual patients, as cancer patients may require different types of information as they progress through the cancer journey. Patient should be provided with a simple guide booklet to help supplying them with the needed important information. Future research efforts should be mindful that patients' information needs change over the course of their cancer journey. Thus, longitudinal assessment of needs should be carried out with clear reference to the point in the cancer care continuum that a patient is currently experiencing. Further study is recommended to compare information needs between women and men patients with breast cancer.

7. Acknowledgements

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Table (1): Distribution of medical related data among study group (n=100).

Medical related data	BCS (50)		MRM (50)		X^2
	No.	%	No.	%	P value
Types of breast cancer					
- Insitu carcinoma	30	60.0	7	14.0	22.69
- Invasive carcinoma	20	40.0	43	86.0	0.00*
Co-morbidities					
- No previous illness	42	84.0	32	64.0	
- Hypertension	5	10.0	11	22.0	16.65
- DM & HTN	1	2.0	3	6.0	0.002*
- Renal diseases	2	4.0	4	8.0	
Previous history of surgery					
- No	45	90.0	42	84.0	0.79
- Yes	**5**	**10.0**	**8**	**16.0**	0.27
- Cabage	1	2.0	1	2.0	
- Hysterectomy	1	2.0	4	8.0	2.98
- Appendicitis	2	4.0	2	4.0	0.70
- Others	1	2.0	1	2.0	
Menopause incidence					
- No	47	94.0	18	36.0	36.96
- Yes	3	6.0	32	64.0	0.00*
Incidence of breast cancer in family					
- No previous incidence	39	78.0	39	78.0	
- Mother	7	14.0	5	10.0	7.13
- Sister	-----	-----	4	8.0	0.13
- Aunt	4	8.0	1	2.0	
- Grandmother	-----	-----	1	2.0	
Nature of patient complaints for the first time					
- Pain in breast	---	----	1	2.0	
- Breast mass	45	90.0	35	70.0	9.58
- Mass & pain	5	10.0	7	14.0	0.02*
- Mass & nipple discharge	---	-----	7	14.0	
Duration from diagnosis to surgery					
- <2 months	33	66.0	16	32.0	11.56
- 2 months and more	17	34.0	34	68.0	0.001*
Stage of disease at time of diagnosis					
- First stage	30	60.0	3	6.0	
- Second stage	18	36.0	31	62.0	36.42
- Third stage	2	4.0	15	30.0	0.00*
- Fourth stage	---	-----	1	2.0	

BCS =breast conserving surgery, **MRM** = modified radical mastectomy

* Significance difference

Table: (2) Relation between information needs and cancer breast surgical treatment modalities of the study group (n=100).

Information Needs Items	BCS (50)		MRM (50)		X^2
	No.	%	No.	%	p- value
1- Disease					
- Low important	5	10.0	27	54.0	25.47
- Moderate important	32	64.0	21	42.0	0.00*
- High important	13	26.0	2	4.0	
2-Investigative tests					
- Low important	19	38.0	41	82.0	20.37
- Moderate important	30	60.0	9	18.0	0.00*
- High important	1	2.0	0	0.0	
3- Treatment					
- Low important	6	12.0	35	70.0	36.86
- Moderate important	31	62.0	7	14.0	0.00*
- High important	13	26.0	8	16.0	
4- Physical					
- Low important	6	12.0	6	12.0	0.053
- Moderate important	30	60.0	31	62.0	0.9
- High important	14	28.0	13	26.0	(NS).
5- Psychosocial					
- Low important	45	90.0	45	90.0	1.00
- Moderate important	5	10.0	5	10.0	0.6
- High important	0	0.0	0	0.0	(NS)

* Significance difference, NS = not significant **,** BCS= Breast Conserving Surgery, MRM= Modified Radical Mastectomy

Figure (1): Distribution of general information related to causes of breast cancer among   the two studied groups (n=100).
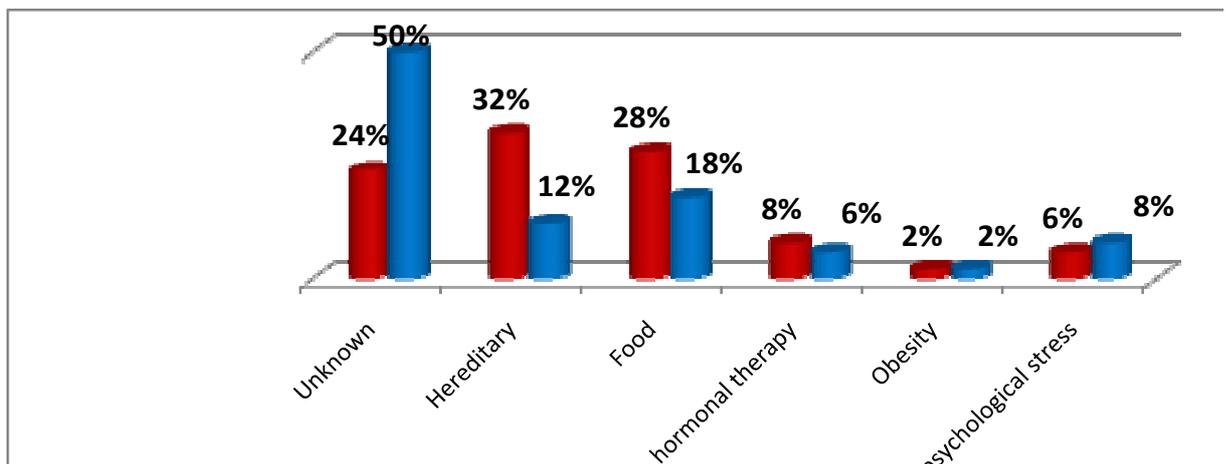
X^2 = 12.48, P. value= 0.05 ,   BCS= Breast Conserving Surgery, MRM= Modified Radical Mastectomy

Figure: (2) Distribution of information source about breast cancer among the two studied groups (n=100).
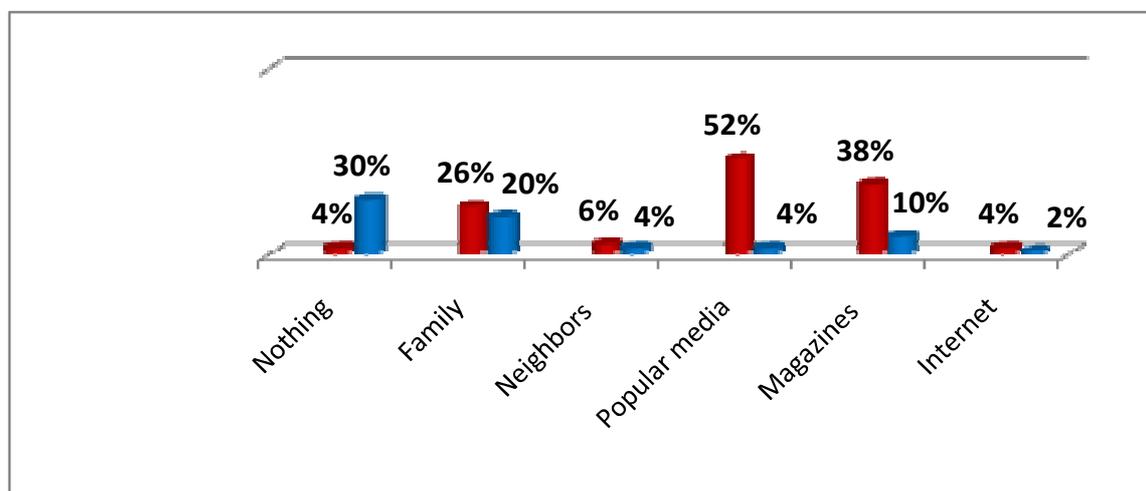
X^2 12.358   P. < 0.002 highly sign. NB. Each participant has more than one response.

BCS= Breast Conserving Surgery, MRM= Modified Radical Mastectomy

Table (3): Relation between total information needs and selected demographic data of the study groups (n=50/each).

Group' Total Information Needs	Demographic data			
	Age	**Marital Status**	**Residence**	**Education**
BCS	F=61.58 p.0.21	F=61.58 p.0.21	F=0.69 p.0.40	F=22.96 p.0.00*
MRM	F=2.89 p.0.03*	F=0.66 p.0.42	F=7.49 p.0.00*	F=15.64 p.0.00*

 * Significance difference

Table (4): Relation between total information needs and Medical related data of study groups (n=50/each).

Group' Total Information Needs	Medical related data							
	Types of breast cancer	**Co-morbidities**	**History of surgery**	**Menopause incidence**	**Family Incidence**	**Nature of the 1st complaints**	**Time from diagnosis to surgery**	**Disease stage at diagnosis**
BCS	F=0.12 p.0.73	F=8.42 p.0.00*	F=1.22 p.0.27	F=0.08 p.0.78	F=1.88 p.0.16	F=12.32 p.0.001*	F=10.71 p.0.00*	F=1.02 p.0.37
MRM	F=1.28 p.0.26	F=2.03 p.0.12	F=3.89 p.0.05*	F=0.01 p.0.92	F=1.23 p.0.31	F=0.55 p.0.65	F=0.88 p.0.57	F=0.99 p.0.67

* Significance difference

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