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Psychological stress and quality of life among Indian patients after breast cancer surgery

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Abstract---Background: Breast cancer (BC) is the type of cancer that affects women most often all over the world. The patient's health is affected by stress as well as a bad quality of life (QOL). The purpose of the research being carried out is to evaluate the QOL of patients suffering from BC by determining the extent to which demographic and other important factors have an influence on their lives. Method: Study was conducted with total of 316 female breast cancer patients of R G Kar Medical College, Kolkata, West Bengal. Data was collected from the patients through interview and questions related to socio-demographics of patients. WHOQOL (World health organization Quality of life) – BREF was another tool used for calculating QOL of BC patients based on 4 domains: physical health, psychological health, social relationship and environment. Result: It was found that women in the age group of 51 -60 have high quality of life and mean score was 59.3. The mean score in four areas were: for social relationship was 60.1, for psychological health was 61.3, for physical health was 56.5, as well as for environmental domain was 58.1. Unmarried, divorced, less educated and low income patients are negatively associated with a quality of life. While the casual workers, housewives, more income, more educated patients have high QOL.

Keywords---breast cancer, quality of life, psychological stress.

Introduction

BC is the most common type of cancer to be found. In 2020, BC was found in more than 2.3 million women (Sung et al., 2021). More than 7.8 million women who were detected with BC in the last five years are still alive (Husby et al., 2018). It is neither infectious nor communicable (Broeckel et al., 2000). According to the WHO (World Health Organization), QOL is an individual's perspective of where they are in life regardless of their culture and values and related to their objectives, expectations, norms, and concerns (MONTAZERI et al., 1996). The

term of "quality of life" encompasses a wide range of factors, including one's physical health, mental well-being, religious or philosophical views, as well as social connections (WHO, 2020). QOL is the most important topic to study concerning cancer patients and get a better understanding of the best way to treat cancer (Pandey et al., 2005). For treatment of BC, the most emphasis has been placed to QOL studies than for any other form of cancer (Gowda et al., 2019). Since the number of people diagnosed with BC rises at an alarming rate of 1.1 million per year around the world, and 40,000 of these people lost their lives to the disease each year, BC is gaining a lot of attention (Quinten et al., 2009). Additionally, early identification as well as treatment of BC have saved the lives of numerous individuals (Howard-Anderson et al., 2012). Finally, the removal of the breast affected women's QOL since they lost their identity (Duijts et al., 2014).

The cancer patient's QOL is an important consideration at any stage of their disease, including during and after treatment. Oncological treatments may improve quality of life but, patients can face its side effects (Decat et al., 2011). Once treated, a patient may experience change in quality of life of different levels (Gogoi et al., 2015). The longer a cancer sufferer is afflicted, the higher their QOL is likely to be (Epplein et al., 2011). A greater understanding of the lives of cancer patients will be gained through studying the factors of QOL (Costa-Requena et al., 2013). According to the findings of a number of studies, sociodemographic parameters such as patients' ages, gender, level of education, and income play an important part in defining the patients' overall QOL after being diagnosed with BC (Ashing-Giwa and colleagues, 1999). A patient's QOL is significantly impacted by monetary support (Yan and colleagues, 2016). A similar review study also found that age, education level, marital status, as well as socioeconomic status were important factors in determining the QOL of female BC patients (Deshpande and colleagues, 2013). Despite the fact that clinical indicators such as "cancer stage" as well as "time duration of disease" do not have any correlation with QOL (Schou and colleagues, 2005).

The QOL of women with BC is thought to be influenced by their socioeconomic status, according to a few Indian research (Deshpande and colleagues, 2013). These investigations found that one of the major factors was the patients' occupation (Kannan and colleagues, 2011). It has been found that women who work outside the home enjoy a higher QOL as compared to housewives. To learn more about the struggles that women with BC are going through, self-efficacy is another key factor to consider (Kannan and colleagues, 2011). The purpose of the study was to examine the QOL of BC patients who have received surgery, chemotherapy, and radiotherapy. In addition, to recognize how demographics (such as age, occupation, income, & education) and various elements such as physical health (PH), mental health (MH), social relationships (SR), & environment impact the QOL of BC patients (Cheng and colleagues, 2012). The investigation is conducted based on the following hypothesis.

H01: Physical & psychological health related activities reduce stress and improves QOL of BC patients.

H02: Social relationship & environmental domains improves the QOL of BC patients.

Material and Methods

This research was conducted at RGKMC, Kolkata. Most of the people who use the hospital are from Kolkata as well as the places nearby cities(rural or urban) within the range of 50 kms from Kolkata. In 2022, there were 15,134,000 people living in the city, and there were 908 women for every 1000 men. About 97.5% of city population was from urban areas. Difference Distribution method was used to study population on the verge of risk of breast cancer in 2022 (Meher et al., 2022). The hospital has an Excellency in diagnosing and treating cancer, chemotherapy, radiotherapy, surgery and research in the field of all types of cancers. During the period of two years, beginning in January 2019 and ending in December 2021, a total of 472 instances of BC were identified at the hospital. Out of 472, Three male patients were not considered in this study. Rest 469 were female patients. 60 patients died due to this disease while 83 patients who were from remote areas could not participate in this study, as they were unable to be traced. 5 women disagreed, 1 with breast sarcoma and 2 of breast lymphoma were also excluded from the study. Data of 2 patients could not be accessed, hence were excluded. Patients were eventually questioned and took part in this study in 2022, when 316 people were surveyed.

Data Collection

Data on BC patients were gathered from an information system (IS) as well as hospital records. Twelve women with breast cancer were chosen for pilot testing. These women were also involved in a detailed study analysis. One person who connected patients via telephone was appointed for data collection (only those patients whose contact numbers were provided in records). Personal consent regarding their face-to-face interview availability was taken through their verbal communication over the telephone. Patients whose contact numbers were not mentioned were contacted to decide interview timings. Radiotherapy or chemotherapy patients who came to attend their chemo sessions were interviewed in the hospital itself. The questionnaire focused on the sociodemographic attributes of the participants, such as age, marital status, education level, occupation, religious affiliation, as well as income. Age was classified into four groups (less than 40, 41–50, 51–60, and greater than 61). The monthly income of the family was divided into three groups (less than INR 5,000; INR 5,000 –INR 10,000; and more than INR 20,000). Another clinical parameter was used to determine the QOL of BC patients: the clinical stage of the breast cancer (stage 1, stage 2, stage 3, & stage 4). As the number of patients in stage 3 and stage 4 were less, it was combined into one group named advanced stage, while stage 1 and stage 2 were combined into another named pre stage.

The other tool that was used to determine the QOL of BC patients was called the WHOQOL – BREF (WHO, 2020). It is comprised of twenty-three items that are organized into the following categories: PH, MH, SR, & environment.

1. The seven components of PH were as follows: the ability to perform activities of daily living; dependence on medical assistance; stress & energy; rest; discomfort; drowsiness; as well as work capacity.

2. MH status (six items), it comprised body image, positive sentiments & negative emotions, personal views, thinking capacity, self-esteem, memory power, learning power as well as concentration-related factors.
3. SR (three elements) consisting of social support, personal support, as well as sexual life.
4. Environment (seven things) comprises safety, socio-healthcare, involvement in recreational activities, the physical environment, as well as transportation.

Each item was assumed to range from 1 to 5 in a good direction (i.e., highest score denoted highest QOL). The mean score with a single domain was converted to 0-100 scale and each denoted perception of patient QOL in that domain.

Analysis

A spreadsheet was used to keep track of each patient's demographic information. Cronbach alphas for physical health was 0.77, psychological health was 0.78, social relationships were 0.86, and that of environment was 0.79. To study the relationship of 23 different variables to that of quality of life, linear regression analysis was performed for this significance $p \leq 0.05$ was used.

Result and Discussion

Mean score was 59.3. Mean score of 4 domains were: physical health had 56.5, psychological (mental) health had 61.3, social relationships had 60.1, and that for environmental domain was 58.1. Result shows quality of life was highest in 51 to 60 years of age group.

Socio-demographic characteristics	Total patients n (%)	Physical health Mean (SD)	Psychological health Mean (SD)	Social relationships Mean (SD)	Environment Mean (SD)
Age at diagnosis					
< 40	44 (21.2)	55.3 (16.8)	57.9 (19.7)	65.9 (16.8)	57.6 (15.1)
41 to 50	78 (37.5)	56.1 (18.0)	58.9 (18.6)	64.3 (20.2)	61.1 (16.2)
51 to 60	51 (24.5)	56.5 (17.7)	61.4 (19.6)	67.3 (17.2)	63.4 (14.3)
> 61	35 (16.8)	54.2 (15.8)	54.6 (15.9)	54.6 (21.0)	59.5 (16.2)
Religion					
Hindu	167 (80.2) 41 (19.8)	55.4 (16.8)	58.3 (18.7)	65.2 (19.5)	60.9 (15.2)
Others	41 (19.8)	56.9 (19.0)	59.6 (18.9)	57.9 (17.7)	60 (17.2)
Occupation					
Manual	71 (34.2)	51.8 (13.4)	52.8 (15.2)	58.2 (18.1)	53.8 (12.8)
Housewife/ casual worker Industry /office	129 (62.0) 8 (3.8)	57.0 (18.1) 70.6 (22.7)	61.2 (19.3) 66.5 (24.7)	67.1 (19.3) 57.8 (20.1)	64.1 (15.4) 66.6 (20.8)
Education					
Higher secondary	43 (20.7)	63.9 (19.1)	67.8 (16.8)	73 (19.1)	70.2 (14.7)
Below secondary Illiterate	115 (55.3)	55.1 (16.9)	57.7 (19.9)	63.2 (18.3)	59.8 (14.7)
Illiterate	50 (24.0)	50.1 (13.6)	52.5 (14.1)	57.1 (19.1)	54.5 (14.6)
Marital status					
Married	174 (83.6)	56 (17.3)	59.7 (18.1)	69.1 (15.5)	61.4 (15.4)
Divorced/ Widowed	30 (14.3)	52.2 (15.4)	50.9 (19.8)	34.7 (12.0)	55.7 (14.9)
Unmarried	4 (1.9)	67.5 (23.4)	65.7 (26.1)	50 (16.2)	67.5 (23.4)
Average monthly family income					
< 5,000	100 (48.0)	51.5 (14.1)	52.4 (16.6)	57.8 (18.0)	54.8 (12.6)
5 - 10,000	86 (41.4)	58.1 (16.8)	62.9 (17.0)	66.1 (17.1)	63.5 (134)
> 10,000	22 (10.6)	65.5 (25.1)	69.6 (23.9)	81.5 (20.9)	76.8 (20.8)

Clinical stage					
Stage 1 and 2	77 (38.7)	55.6 (16.1)	59.6 (16.1)	64.2 (18.1)	62.2 (13.6)
Stage 3 and 4	122 (61.3)	55.5 (16.9)	57.3 (19.2)	62.2 (19.7)	58.9 (15.7)

Female patients of different religions have a high QOL in terms of PH and SR, but Hindu women have higher MH. Official workers got high scores in all dimensions, with the exception of the socio connection domain; nevertheless, housewives & casual workers had significantly better social ties than official workers. Married women indicated having stronger social ties, despite the fact that unmarried women possessed higher levels of physical, psychological, and environmental means. The higher educated the women are, the higher their income will be across the board in terms of QOL.

Patient characteristics	Physical health Coefficient (95% CI)	Psychological health Coefficient (95% CI)	Social relationship Coefficient (95% CI)	Environment Coefficient (95% CI)
Age				
< 40	0	0	0	0
41 to 50	0.7 (-5.6, 7.2)	0.9 (-6, 7.9)	-1.5 (-8.6, 5.4)	3.4 (-2.2, 9.2)
51 to 60	1.1 (-5.8, 8.2)	3.4 (-4.1, 11)	1.4 (-6.3, 9.1)	5.8 (-0.5, 12.1)
> 61	-1.1 (-8.8, 6.6)	-3.3 (-11.6, 5.3)	-11.2 (-19.7, -2.7)	1.8 (-5.05, 8.8)
Religion				
Hindu	0	0	0	0
Others	1.5 (-4.4, 7.4)	1.3 (-6.1, 7.7)	-7.2 (-13.8, -0.6)	-0.8 (-6.2, 4.5)
Occupation				
Manual	0	0	0	0
Housewife	5.1 (0.2, 10.1)	8.3 (3, 13.7)	8.95 (3.4, 14.4)	10.2 (5.9, 14.5)
Casual worker Industry / office	18.8 (6.3, 31.2)	13.6 (0.1, 27)	-0.3 (-14.3, 13.5)	12.7 (1.8, 23.6)
Education				
Higher secondary	0	0	0	0
Below secondary	-8.8 (-14.7, -2.9)	-10 (-16.4, -3.7)	-9.8 (-16.3, -3.2)	-10.3 (-15.5, -5.1)
Illiterate	-13.7 (-20.6, -6.9)	-15.3 (-22.7, -7.9)	-15.8 (-23.4, -8.1)	-15.7 (-21.7, -9.7)
Marital status				
Married	0	0	0	0
Divorced/Widowed	-3.8 (-10.5, 2.8)	-8.8 (-16, -1.6)	-34.3 (-40.2, -28.4)	-5.7 (-11.7, 0.3)
Unmarried	11.4 (-5.7, 28.5)	5.9 (-12.4, 24.4)	-19.1 (-34.1, -4.06)	6.0 (-9.3, 21.5)
Monthly income				
< 5,000	0	0	0	0
5- 10,000	6.5 (1.6, 11.3)	10.5 (5.3, 15.6)	8.2 (3.02, 13.4)	8.6 (4.6, 12.7)
> 10,000	13.9 (6.1, 21.7)	17.2 (9, 25.4)	23.6 (15.3, 32.0)	22.0 (15.5, 28.5)
Clinical stage				
Stage 1 and 2	0	0	0	0
Stage 3 and 4	0.0 (-4.8, 4.7)	-2.2 (-7.4, 2.9)	-2.1 (-7.6, 3.2)	-3.3 (-7.6, 1.0)

Age above sixty-one years, as well as non-Hindus, had a substantial negative connection with social interactions. A significant favorable connection was found between housewives and each of the four aspects that make up QOL. The physical, mental, as well as environmental aspects were all seen in a favorable light when viewed through the eyes of official workers. Patients with lower levels of education, on the other hand, had a negative association to all of the areas. In both the mental as well as physical health areas, women who had been divorced or widowed scored lower, indicating that they had had a lower QOL. On the other hand, women who had never been married had a lower connection with environment interactions. Patients with a higher monthly salary have better outcomes in all four areas.

Conclusion

The present investigation contributed to the identification of various elements that can have a positive or negative impact on the QOL of BC patients (Biswal et al., 2013). It was discovered that patients who were young, without partners (divorced or unmarried), as well as less educated had a lower QOL. Furthermore, patients who worked and had a significant monthly salary, as well as housewives, had a higher QOL (Broeckel et al., 2000). According to the findings of this study, BC patients require long-term access to high-quality education & assistance (Gangane et al., 2017). Patients with less education require a great deal of encouragement as well as knowledge on BC therapy; this can be provided through counselling and the free distribution of informational booklets in regional and national dialects. Patients with higher incomes have been found to have greater QOL and better access to timely & better treatment (Yan et al., 2016). A BC follow-up clinic can help in enhancing BC cancer patients' QOL by giving free and comprehensive counselling services (Kannan et al., 2011). Similarly, (Schou et al., 2005) found that social support from their companions, friends, as well as family members plays a crucial role in stress reduction in women suffering with BC. BC awareness should be promoted on a regular basis, and free BC screenings should be made available in both urban & rural regions of the city. Lack of education is one of the biggest barriers to enhance the quality of a patient's life; the system of education can make a significant contribution. According to Epplen et al. (2011), the more educated the patients are, the shorter time it will take the healthcare system to give them with information. Consequently, a complete public healthcare strategy that includes financial, social, as well as environmental support systems can help BC survivors live a better life.

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