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A Study to Assess Perceived Stress Level among Breast Cancer Patient in Selected hospital, Kolkata

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Abstract: ***A study was undertaken to assess the perceived stress level among breast cancer patients. The conceptual framework adopted for the study was based on "Health Belief Model". 40 breast cancer patients were included in the study. Non probability purposive sampling technique was used to collect data from the patients in a selected government hospital Kolkata. Structured interview schedule and standardized tool on perceived stress scale by William and Cohen was used as data collection tool. The findings of the study reveal that there was low perceived stress in 12.5%, moderate perceived stress in 82.5%, severe perceived stress in 5% breast cancer patients. There was no association found between perceived stress level and selected demographic variables. The study can be implicated in nursing field where it may be used for forming future plan to improve existing condition. Further study can be made on a larger sample and also comparative study can be conducted.***

Keywords: Breast cancer patients, perceived stress**.**

1. Introduction

Health is a state of complete physical, mental, and social well-being and not merely the absence or disease or infirmity. ----WHO

Normally, human cells grow and divide to form new cells as the body needs them and becoming old, they die and new cells take their place. But in cancer, this orderly process breaks down. Cancer is the name given to a collection of related disease. In all types of cancer, some of the body's cell begins to divide without stopping and spread into surrounding tissues.

The global cancer burden is estimated to have risen to 18.1 million new cases and 9.6 million deaths in 2018. One in 5 men and one in 6 women worldwide develop cancer during their lifetime, and one in 8 men and one in 11 women die from the disease. [1]

Stress is one of the leading causes of breast cancer [11] along with other factors. Not only cause but cancer of different parts of the body can produce mild anxiety and depression also.[6]

2. Literature Survey

In this study literature review based on the heading:

Literature related to breast cancer other chronic disease and psychological changes affecting each other:

Valentina-fineta chiriac, adriana baban, dan dumitrascu conducted a study on psychological stress and breast cancer incidence: a systematic review including all literature studies from 1966 to 2016, A number of 17 retrospective, 20 limited prospective and 15 prospective studies were analyzed The number of patients exceeded 29,000, for a total number of more than 700.000 women recruited from hospital, screening cohorts or population registers. We identified 26 positive articles linking personal traits, stressful events and breast cancer, 18 negative articles that did not confirm their hypothesis and 8 articles that could not be classified. Facing heterogeneity, all possible misguiding factors such as: study design, information gathering, stress type, moment of exposure, individual susceptibility and personality, were discussed independently.[2]

A study conducted by Lilia Antonova, Kristan Aronson, and Christopher R Mueller Stress and breast cancer: from epidemiology to molecular biology. The present review aims to consolidate the findings from different fields of research (including epidemiology, physiology, and molecular biology) in order to present a comprehensive picture of what we know to date about the role of stress in breast cancer development. Epidemiological reviews demonstrated a need for more well-devised studies – ideally, prospective cohorts that take into account confounding factors and focus on specific types and timing of stress exposure. Physiological research demonstrates that laboratory studies, in the most part, support a stress–breast cancer association. This is consistent with findings from epidemiologic studies looking at the effect of life events on breast cancer risk. Molecular work on the effects of stress in breast cells in particular is still in its early stages. The suppressive effect of cortisol on the apoptotic ability and DNA repair capacity of cells, as well as its negative effect on immunity, Suggests that a connection between stress signaling and tumor development is biologically plausible. [3]

Míria Conceição Lavinas Santos Bernardo Lessa Horta et al conducted a study on Association between stress and breast cancer in women: a meta-analysis The objective of the current meta-analysis was to verify the association between stressful life events and primary breast cancer incidence in women. A total of 618 studies from 1982- 2007 were found. Methodological quality was evaluated according to the Downs & Black criteria. Eight studies were selected (six case-controls and two cohorts). The studies were grouped in three analyses, two of which based on the categories widowhood and divorce and the other based on self-rated intensity and frequency of stressful events. Relative risks

were: widowhood 1.04 (95%CI: 0.75-1.44; p = 0.800); divorce 1.03 (95%: 0.72-1.48; p = 0.850); and intensity/frequency of stress 1.73 (95%CI: 0.98-3.05; p = 0.059). it was concluded that stressful life events as a whole are not associated with risk of breast cancer in women. However, it is not possible to rule out high-intensity stress as a risk factor for breast cancer.[4]

A study on Stress and Quality of Life in Cancer Patients: Medical and Psychological Intervention conducted by Prasad Vijay Barre, Gadiraju Padmaja, et al. with the aim to analyze the impact of combined medical and psychological (psycho education, relaxation technique–guided imagery, and cognitive therapy) interventions on stress and Quality of Life (QOL) of cancer patients – head and neck, breast, and lung cancers. The study was conducted in cancer hospitals employing pre experimental design (one-group pretest-posttest). Findings showed high impact of the combined MPIs in reducing both the overall stress as well as the various components of the stress scale-fear, psychosomatic complaints, information deficit, and everyday life restrictions. Significant changes were also seen in QOL and its domains – global health status, besides functional and symptom scales and significant improvement in physical, role and emotional functioning scale, while decrement in fatigue, pain, insomnia, appetite loss, diarrhea, and constipation of symptoms scales. [5]

Novin Nikbakhsh, Sussan Moudi et al. conducted a study on Prevalence of depression and anxiety among cancer patients in the year 2012-2013, 150 patients with recent diagnosis of different cancers in Babol, Iran were taken as study participants. A presumptive diagnosis of anxiety and depression was based on Hospital Anxiety And Depression Scale (HADS). The score of 0-7 means without clinical symptoms of anxiety or depression, 8-10 mild and 11-21 symptomatic anxiety or depression. The data were collected and analyzed. 44 (29.3%) patients had mild anxiety, 25 (16.7%) symptomatic anxiety but mild and symptomatic depression were seen in 40 (26.7%) and 32 (21.3%) patients, respectively. There were significant relationships between anxiety, depression and the age group of the patients with higher frequency in older ages. There were significant relationships between anxiety and depression with the type of cancer and type of treatment. Breast and stomach cancer patients had the highest prevalence of anxiety and depression and the higher prevalence was observed in the patients who received chemotherapy as the single treatment. [6]

A study on Quality of life and symptom experience in breast cancer survivors after participating in a psycho educational support program: a pilot study conducted by Jin-Hee Park, Sun Hyoung Bae, et al. with the purpose to examine the quality of life (QOL) and symptom outcomes of a psycho educational support program for women in the first year of post breast cancer treatment survivorship. The sample consisted of 48 female breast cancer survivors randomly assigned to an intervention group (n = 25) and control group (n = 23). The psycho educational support program consisted of individual face-to-face education, telephone-delivered health-coaching sessions, and small-group meetings. Study instruments were the Memorial Symptom Assessment Scale-Short Form and Functional Assessment of Cancer Therapy-Breast questionnaire. Compared with the control group, survivors in the intervention group reported higher QOL overall and higher emotional well-being. The intervention group reported lower psychological symptom distress than the control group. [7]

Minouk J. Schoemaker, Michael E. Jones, et al. conducted a cohort investigation on psychological stress, adverse life events and breast cancer incidence: a cohort investigation in 106,000 women in the United Kingdom. Breast cancer incidence was analyzed with respect to stress variables collected at enrolment in a prospective cohort study of 106,000 women in the United Kingdom, with 1783 incident breast cancer cases. Relative risks (RR) were obtained as hazard ratios using Cox proportional hazards models. There was no association of breast cancer risk overall with experienced frequency of stress. Risk was reduced for death of a close relative during the 5 years preceding study entry (RR = 0.87, 95 % confidence interval (CI): 0.78–0.97), but not for death of a spouse/partner or close friend, personal illness/injury, or divorce/separation. There was a positive association of divorce with oestrogen-receptor-negative (RR = 1.54, 95 % CI: 1.01–2.34), but not with estrogen-receptor-positive breast cancer. Risk was raised in women who were under age 20 at the death of their mother (RR = 1.31, 95 % CI: 1.02–1.67), but not of their father, and the effect was attenuated after excluding mothers with breast or ovarian cancer (RR = 1.17, 95 % CI: 0.85 -1.61). [8]

A study on Adverse life events and breast cancer: case-control study conducted by C C Chen, A S David,et al. with the objective to investigate the strength of association between past life events and the development of breast cancer, in Breast Cancer Screening Assessment Unit and surgical outpatient clinics at King's College Hospital, London. A standardized life events interview and rating was administered before a definitive diagnosis. 119 consecutive women aged 20-70 who were referred for biopsy of a suspicious breast lesion. 41 women were diagnosed as having malignant disease while the remainder had benign conditions. Severe life events increased the risk of breast cancer. The crude odds ratio was 3-2 (95% confidence interval 1-35 to 7.6). After adjustment for age and the menopause and other potential confounder this rose to 11*6 (3.1 to 43.7). Multiple logistic regression analysis showed that all severe events and coping with the stress of adverse events by confronting them and focusing on the problems significantly predicted a diagnosis of breast cancer. Non-severe life events and long term difficulties had no significant association. [9]

A study on Breast cancer and associated factors: a review conducted by Ataollahi MR, Sharifi J et al. This article investigated different dimensions of breast cancer and its associated factors. It revealed that breast cancer was and continues to be among the most prevalent and growing malignant diseases among Iranian women in the past four decades. In this article, required information was collected through literature review and keyword (cancer, breast cancer, cell, gene, life quality, women, prevalence, productivity, age, obesity, alcohol, cigarette, menopause,

genetic, Cytokine, and mortality). This disease affects all physical, mental, and social aspects of women life. On the other hand, factors such as social and family supports during the illness can reduce its damages. Although, the [exact] etiology of breast cancer is unknown, its associated risk factors were identified, factors such as aging, history of breast cancer in the family, specific changes in breast(s), gene changes, history of productivity and menopause, lack of physical activity, alcohol consumption, obesity, nutrition, race, and radiation therapy to chest are risk factors of breast cancer. [10]

A study on The effects of perceived stress and life style leading to breast cancer conducted by Lee Wang , Wen-Chun Liao et al. in a Taiwanese medical center from June 2009 to June 2011 to investigate the relations of perceived stress and lifestyle to breast cancer. A total of 157 cases and 314 controls completed a structured questionnaire. Using multiple logistic regression models, high perceived stress (adjusted odds ratio [AOR] = 1.65; 95% confidence interval [CI], 1.10-2.47), less than 1,000 kcal of physical activity expenditure per week (AOR, 2.17; 95% CI, 1.39-3.39), and high intake of fried and stir-fried food (AOR, 1.86; 95% CI, 1.24-2.77) were positively associated with breast cancer. Breast cancer was related to joint interactions between high perceived stress and alcohol intake of 11.0 g or more per day (AOR, 2.91; 95% CI, 1.23-6.86), smoking at least one cigarette per day (AOR, 2.52; 95% CI, 1.16-5.47), intake of less than 100 ml of green tea per day (AOR, 2.47; 95% CI, 1.40-4.38), physical activity of less than 1,000 kcal per week (AOR, 3.36; 95% CI, 1.77-6.36), high fried and stirfried food intake (AOR, 3.18; 95% CI, 1.79-5.63), and high meat and seafood intake (AOR, 1.89; 95% CI, 1.09-3.27).[11]

A. Cheang, C. L. Cooper conducted a study on Psychosocial factors in breast cancer. 121patients who were admitted for breast biopsy were interviewed on the day before the operation. They were asked to recall all stressful life events which had occurred during the two years that preceded the onset of cancer. An appropriate control group of 42 healthy patients from a well woman clinic were also interviewed. All patients also completed a self-rating questionnaire. Scaling of life events was done by another group of hospital inpatients. The results showed that cancer patients experienced significantly more stressful life events in the two years that preceded the onset of cancer than the non-cancer and well woman patients. Cancer and non-cancer patients experienced events with medium and high stress factors, while the well woman patients experienced events with low and medium stress factors. The main difference in personality was that cancer patients tended to 'conceal their feelings', while the non-cancer and well woman patients were more 'expressive of their feelings'. [12]

Faruk Tas , Umran Karalar, et al. conducted a study on The major stressful life events and cancer: stress history and cancer with the objective to analyze the extent of stressful life events' etiology and to compare socio-demographic and medical characteristics of the presence and absence of stress in Turkish cancer patients. Patients with cancer who attended ambulatory patient care units answered the questionnaires. The study population comprised 465 women (60.5%) and 303 men (39.5%), in total 768 cases. Three-hundred and twenty patients (41.7%) had at least one type of stress since last year of the time of initial diagnosis. Death, lack of livelihood, quarrel, illness, and debt almost always consisted of stress types. History of stress within last year was found more in women (66.3% vs. 56.5%, P = 0.006) and overweight patients (57.5% vs. 47.2%, P = 0.005). Similarly, among cancer types, only patients with breast cancer (41.9% vs. 31.7%, P = 0.04) had lived more stressful situation. However, the married patients (72.2% vs. 80.6%, P = 0.03) had less stress. Patients with gastric cancer had more frequent debt (29.0%, P < 0.001) and lack of livelihood history (21.4%, P = 0.001). Additionally, in lung cancer patients, their rate of livelihood difficulty was highly less than average (2.4%, P = 0.003). We found that overweight patients had more illness history (68.9% vs. 51.6%, P = 0.004), patients who were not working had more death history (89.7% vs. 78%, P = 0.01), and female patients had more quarrel history (78.2% vs. 60.5%, P = 0.002). Likewise, history of debt in patients who is a member of large family (56.2% vs. 27.4%, P = 0.01) was more frequent. Additionally, the lack of livelihood was prominent in urban patients (92.8% vs. 78.6%, P = 0.002) and in patients with low income (48.5% vs. 66.7%, P = 0.004). [13

A case control study was conducted by Ronit Peled, Devora Carmil on Breast cancer, psychological distress and life events among young women. The aim of the present study was to examine the relationship between life events, psychological distress and Breast Cancer (BC) among young women. The study population included 622 women, under the age of 45 years. 255 were diagnosed for BC, and 367 were healthy women. A validated Brief Symptom Inventory (BSI) and Life Event Questionnaire were used. The cases presented significantly higher scores of depression compared to the controls and significant lower scores of happiness and optimism. A significant difference was found when comparing the groups according to the cumulative number of life events (two or more events). A multivariate analysis suggest that exposure to more than one life event is positively associated with BC [Odds Ratio (OR) :1.62 95% Confidence Interval (CI): 1.09–2.40], and that a general feeling of happiness and optimism has a "protective effect" on the etiology of BC. (OR-0.75, 95% CI:0.64– 0.86). [14]

3. Methodology

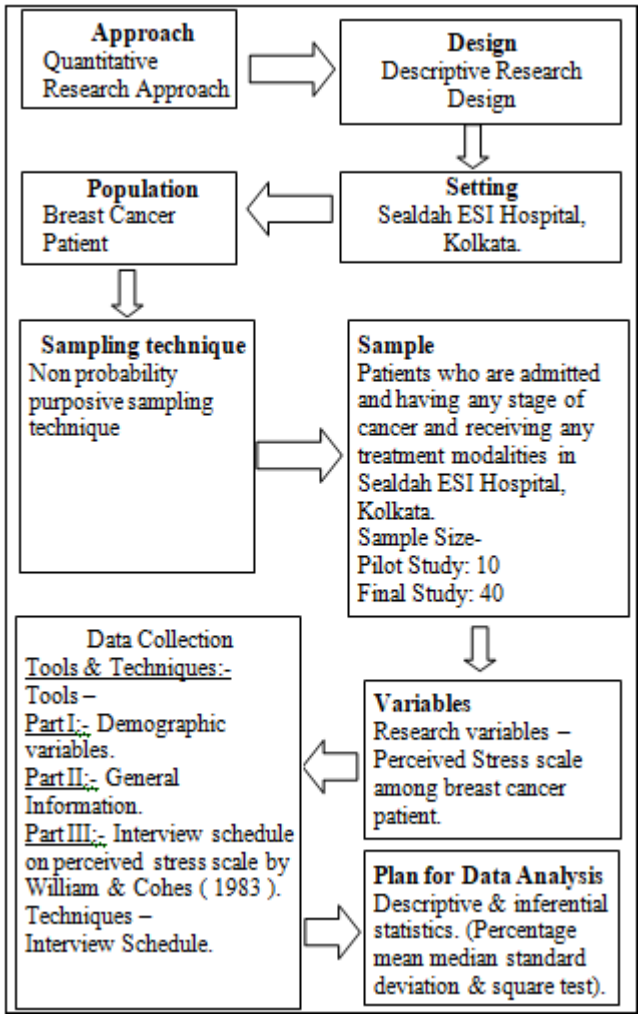

Figure 1: Schematic Diagram of Methodology

4. Result

Table 1: Showing percentage distribution of perceived stress score and level among breast cancer patients, n=40

Perceived Stress Score	*Perceived Stress Level*	*Percentage*
0-13	Low stress level	12.5%
14-26	Moderate stress level	82.5%
27-40	Severe stress level	5%

Data presented in table no 1 shows that maximum breast cancer patients have moderate stress (82.5%), and minimum breast cancer patients have severe stress level (5%).

Table 2: Showing mean, median, range and SD of the perceived stress score, n=40

Mean	Median	Range	SD
18.77	19	7 - 28	4.60

Data presented in the table 2 shows that mean perceived stress score is 18.77, median score is 19 and SD is 4.60.

Table 3: showing association between perceived stress level and selected demographic variables, n=40

Demographic variable	*Frequency* <19	*Frequency* ≥19	χ^2	*df*	*Significance*
Age					
a. 20-35 yrs	1	1			not
b. 36-50 yrs	11	17	0.57	2	significant
c. 51-65 yrs	6	4			
Religion					
a. Hindu	14	17			not
b. Muslim	4	5	0.28	2	significant
c. Others	6	0			
Type of family					
a. Nuclear	11	14	0.02	1	not
b. Joint	7	8			significant
Habitant					
a. Village	7	9	0.01	1	not
b. Town	11	13			significant
Family income per month					
a. <10,000	6	19			not
b. >/10,000	12	13	2.5	1	significant
Marital status					
a. Married	17	14			not
b. Unmarried	0	1	1.37	2	significant
c. Others	1	7			
No. of children					
a. 0-2	14	15	0.54	1	not
b. More than 2	4	7			significant
Occupation					
a. Housewife	14	16	1.02	2	not
b. Service holder	3	3			significant
c. Self worker	0	4			

Demographic variable	*Frequency* <19	*Frequency* ≥19	χ^2	*df*	*Significance*
Education					
a. Illiterate	1	2	0.66	2	not
b. Primary education	13	17			significant
c. Secondary and above	4	3			
Awareness of disease					
a. Yes	18	20	0.97	1	not
b. No	0	2			significant
History of presence of cancer in the family					
a. Yes	4	6	0.13	1	not
b. No	14	16			significant
History of presence of chronic disease in family					
a. Yes	1	6	0.34	1	not
b. No	17	16			significant

Data presented in table no 3 showing that there is no significant association found between the perceived stress level and selected demographic variables.

5. Discussion

The present study finding of is supported by a case control study was conducted by Ronit Peled, Devora Carmil on Breast cancer, psychological distress and life events among young women. This study presented significantly higher scores of depression and significant lower scores of happiness and optimism among breast cancer patients,[14] similarly in the present study moderate stress was found among majority of the breast cancer patients.

The present study finding contradicts with the study conducted by Novin Nikbakhsh, Sussan Moudi et al. on Prevalence of depression and anxiety among cancer patients. There was significant relationships between anxiety, depression and the age group of the patients with higher frequency in older ages,[6] but in this present study no significant association found between perceived stress level and age of the patients.

6. Conclusion

This study was conducted to assess the perceived stress level among breast cancer patients. It was believed that every breast cancer patients have stress in them to some extent. This study found that majority of the participants having moderate level of perceived stress among them.

7. Future Scope/ Recommendation

- This study can be replicated on a larger sample for generalization.
- Similar study can be performed on al type of cancer patients.
- Comparative study can be conducted on different types of cancer patients, and settings like government sector and private sector.

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Author Profile

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