SSR Institute of International Journal of Life Sciences
ISSN (O): 2581-8740 | ISSN (P): 2581-8732
Jadhav *et al*., 2024
DOI: 10.21276/SSR-IIJLS.2024.10.2.1

Research Article

open access

Correlation between Depression and Quality of Life in Breast Cancer Patients through a Cross-Sectional Analysis

Jadhav Priyanka A[1*], Deelip S. Natekar[2*], Sharanu[3], Mahesh[3], Shruti[3], Pushpa[3], Hanamant[3], Jayashree[3]

[1]Lecturer, Department of Obstetrical and Gynaecological Nursing, B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, Karnataka, India

[2]Principal, Department of Community Health Nursing, B.V.V.S Sajjalashree Institute of Nursing Sciences, Navanagar, Bagalkot, Karnataka, India

[3]Student, Department of Obstetrical and Gynaecological Nursing, B.V.V.S Sajjalashree Institute of Nursing Sciences, Navanagar, Bagalkot, Karnataka, India

***Address for Correspondence:** Jadhav Priyanka A, Lecturer, Department of Obstetrical and Gynaecological Nursing, B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot-587102, Karnataka, India
E-mail: pinkyanil578@gmail.com

Received: 22 Nov 2023/ Revised: 23 Dec 2023/ Accepted: 23 Feb 2024

ABSTRACT

Background: Cancer is referred to as a disease in which few body cells proliferate in an uncontrol manner and invade other parts of the body. The human body comprises trillions of cells, and cancer can practically develop anywhere. The human body's cells typically proliferate and divide into new cells as required by the body. Old cells are replaced by new ones when they die due to injury or ageing.

Methods: A descriptive correlation study was conducted among 100 adolescent breast cancer women. Convenient sampling was employed to choose the study region. A stratified proportionate random sampling technique was used to select the patients from the Obstetrical and Gynaecological unit of Kerudi Hospital, Bagalkot, India. Sociodemographic information was gathered using a structured sociodemographic profile. The quality of life (QOL) and depression were assessed using numerical rating scale. The objectives of the study analysed data.

Results: A significant negative correlation was found between overall quality of life (OQOL) scores and depression. A positive correlation existed between the psychological domain and depression, physical domain, social domain, environmental domain, and total quality of life (TQOL). The sociodemographic characteristics of cancer patients and their depression ratings did not significantly correlate.

Conclusion: The study results reveal depression and QOL of breast cancer patients. Based on the findings of this study, we emphasize the interventional research and recommendations for enhancing all aspects of QOL and reducing the psychological impact of depression in the later life of breast cancer patients.

Key-words: Depression, Polycystic ovary syndrome, Quality of life, Stress

INTRODUCTION

Breast cancer is considered the most frequent cancer in women globally, including in India, where women are more likely to die from the disease due to late diagnosis, high mortality rates and increasing incidence. Therefore, it is critical to understand women's cancer literacy [1].

A wide range of illnesses that can impact any region of the body are collectively referred to as cancer. One characteristic that sets cancer apart is the speed at which abnormal cells proliferate beyond normal limits, infect adjoining body parts, and circulate to other organs; this process is known as metastasis [2].

Most female cancer deaths are caused by breast cancer, accounting for 2.1 million deaths yearly. It is the most prevalent cancer in females. An estimated 627,000 women died of breast cancer in 2018, making up around

How to cite this article
Jadhav PA, Natekar DS, Sharanu, Mahesh, Shruti, et al. Correlation between Depression and Quality of Life in Breast Cancer Patients through a Cross-Sectional Analysis. SSR Inst Int J Life Sci., 2024; 10(2): 5001-5008.

Access this article online
https://iijls.com/

15% of all female cancer deaths. Previously, women in more developed nations had higher rates of breast cancer, but these rates are now rising in almost every region of the world [3,4]. Breast cancer is the most frequent cancer among women in India, where women are more likely to die from the disease due to rising incidence and mortality rates and late stages at diagnosis [5].

According to a study on teenage and young adult cancers, male cancer incidence has significantly increased over time [6]. In India, the incidence of cancer cases is estimated to elevate to 12.8% in 2025 as compared to 2020 [7].

During cancer diagnosis and treatment, many women experience depression. Depression is a commonly associated condition in cancer that negatively impacts the QOL, adherence to therapy, and chance of survival. Individuals with cancer are more likely to consider self-harm and suicide. Between 1.5% and 50% of women with breast cancer experience depression regularly. For instance, a 2017 study conducted in an Indian city revealed that 22% of breast cancer patients also had depression [8]. Patients will suffer from increased pain, intense exhaustion, a shorter life expectancy, and a lower QOL if their depression coincides with breast cancer [9,10].

Additionally, a 2009 study conducted in China found that 26% of breast cancer patients experienced signs of depression [11]. Women who have breast cancer experience a spectrum of emotional reactions, from minor mood swings to acute anxiety and depression. Breast cancer patients require time to heal and get back to "normal." However, 20–30% of breast cancer patients reported symptoms of anxiety, despair, poor functioning, and low self-esteem after diagnosis. These effects can last long after diagnosis and therapy, especially in younger women, depending on the timing and technique of the test [12]. Patients with breast cancer had lower QOL in all areas except family functioning when they suffered from depression. Women with breast cancer who receive treatment for depression have better QOL and may live longer [13].

During every stage of therapy, the primary caregivers of women diagnosed with breast cancer can have a significant impact on how the patients adjust to and manage the disease, as well as helping them make the best decisions[14]. According to reports, those with breast cancer who actively seek out social support are less likely to experience morbidity and death and enjoy a higher QOL [15,16]. Cancer has a detrimental impact on the QOL of both patients and caregivers [17].

A caregiver has psychological distress and financial strain as a result of their caregiving responsibilities [18]. Among the physical symptoms that the caregivers most often reported experiencing were altered sleep patterns and hypertension [19]. Thus, maintaining the QOL of caregivers is linked to their capacity to satisfy their needs and deliver better care to their patients [20]. This can be accomplished by supporting them in adjusting to the changes brought about by such troublesome events [21].

MATERIALS AND METHODS

Research Design- A non-experimental descriptive research was conducted to assess depression and QOL among 100 women diagnosed with breast cancer using a non-probability convenient sampling technique. The data were collected through a structured interview schedule with standard scales. Depression was measured using a 29-item scale called (CED-D) NIMH scale, a 4-point scale. The higher the score, the higher the level of depression. The scale was translated into Kannada and then back-translated into English.

Inclusion Criteria

- Women diagnosed with breast cancer receive chemotherapy at the Oncology units of selected hospitals in Bagalkot, India.
- Aged 18 years and above.
- Diagnosed with breast cancer at least for 6 months.
- Able to communicate either in Kannada or English.
- Hospitalized in the Oncology unit for at least the past 2 months

Exclusion Criteria

- Those breast cancer patients, who have chronic diseases other than cancer.
- Having psychiatric issues.
- Those who were unable to communicate.

Socio-demographic variables and clinical features- Socio-demographic data includes information such as age, educational status, religion, occupation, family monthly income, residence, type of family, source of information, and clinical characteristics like type of cancer, pain, duration of cancer, any previous surgery,

DOI: 10.21276/SSR-IIJLS.2024.10.2.1

exposure to any radiation therapy and number of times chemotherapy received.

Statistical Analysis- The study used descriptive and inferential statistics to analyse the collected data. After the participants provided frequencies and percentages of their answers, a master data set was created to analyse the demographic information, and the mean and standard deviation of the questions answered. The chosen sociodemographic factors and their relationship to depression were established using the Chi-square test.

Ethical Approval- The Institutional ethical clearance committee of B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot, has granted ethical clearance. Informed consent was obtained from each subject.

RESULTS

Socio-demographic information and clinical characteristics such as age, educational status, occupation, religion, residence, family monthly income, type of family, source of information, type of cancer, duration with cancer, pain, any previous surgery, exposure to any radiation therapy and number of times chemotherapy received were studied and tabulated (Table 1). The majority of patients (34%) were 36-40 years old, were Hindu (68%), had secondary education (37%), were daily wages workers (47%), resided in rural settings (68%) and had nuclear families (53%). The majority of respondents experienced moderate pain (52%), were cancer patients for more than 1 year (51%), none of them underwent any previous surgery (68%), and received radiotherapy (74%) 1-2 times (76%).

Table 1: Socio-demographic and clinical characteristics of breast cancer women (N=100)

Variables	Frequency	Percentage (%)
Age (in years)		
Below 18-25	13	13
26-30	24	24
31-35	29	29
36-40	34	34
Religion		
Hindu	68	68
Muslim	19	19
Christian	8	8
Others	5	5
Education		
Primary	27	27
Secondary	37	37
Degree and above	18	18
No formal	18	18
Occupation		
Daily wages	47	47
Self-employed	19	19
Government employee	8	8
Others	26	26
Residence		
Rural	68	68
Urban	34	34
Income Per Month (In Rs.)		
Below 5,000	31	31
5001-10000	31	31

DOI: 10.21276/SSR-IIJLS.2024.10.2.1

10001-20000	25	25
Above 20000	13	13
Type of family		
Joint family	43	43
Nuclear family	53	53
Extended family	4	4
Source of information		
Family member	32	32
Doctor/ health worker	17	17
Mass media	20	20
Other	31	31
Pain		
Mild	18	18
Moderate	52	52
Severe	30	30
Duration of time with cancer		
Less than 1 year	49	49
More than 1 year	51	51
Any surgery done previously		
Yes	32	32
No	68	68
Exposed to any radiation therapy		
Yes	74	74
No	26	26
Number of times chemotherapy received		
Never	24	24
1-2 times	76	76

The level of depression was categorized as mild, moderate and severe, with 5%, 91%, and 4% of respondents showing a range of scores as 16-30, 31-45 and 46-60, respectively (Table 2).

Table 2: Levels of depression among breast cancer women

Level of depression	Range of score	No. of respondents	Percentage (%)
Mild depression	16-30	5	5
Moderate depression	31-45	91	91
Severe depression	46-60	4	4

Assessment of the levels of QOL among breast cancer patients showed that the majority (60%) of them had a poor QOL, followed by 26% of them who had a fair QOL, and 14% of the depressed women had good QOL. The maximum score of depression among cancer patients was 87. None of the patients showed a score >89. The mean and SD of depression score was (36.44±6.39) and the mean percentage was 60.73% (Table 3).

Table 3: Levels of quality of life among breast cancer patients

Levels of QOL	Range of scores	Number of respondents	Percentage (%)
Poor	Less than 45	60	60

DOI: 10.21276/SSR-IIJLS.2024.10.2.1

Fair	45-66	26	26
Good	67-88	14	14
Excellent	More than 89	00	00

QOL= Quality of life

The mean, SD and mean percentage of TQOL scores illustrated that the highest mean percentage of cancer patients (63.6%) was found for overall domain with mean and SD(6.36±1.123), followed by psychological domain (55.11%) with mean and SD (16.95±3.236), social domain (82.5%) with mean and SD (8.25±2.00), physical domain (56.5%) with mean and SD (19.29±3.3068), environmental domain (53.05%) with mean and SD (21.22±4.103), and total QOL (55.46%) with mean and SD (72.1±11.4). Pearson's correlation coefficient test was used to find the correlation between depression and QOL of breast cancer patients. A positive correlation between spiritual needs and TQOL scores (r=-0.07908) was found but was not statistically significant (Table 4).

Table 4: Mean and SD of quality-of-life scores (N=100)

Variable	Maximum score	Mean	Standard deviation	Mean percentage (%)
Overall QOL	10	6.36	1.1	63.6
Physical domain	30	16.95	3.23	56.5
Psychological domain	35	19.29	3.30	55.11
Social Domain	15	8.25	2.00	82.5
Environmental domain	40	21.22	4.10	53.05
Total QOL	130	72.1	11.4	55.46

QOL= Quality of life

On comparing the depression score with sociodemographic data and clinical features, including age, educational attainment, employment, place of residence, religion, family monthly income, information source, kind of family, kind of cancer, length of cancer, pain, history of surgery, exposure to radiation therapy, and number of chemotherapy sessions received, we obtained negative correlation with the studied variables (p-value<0.05) (Table 5).

Table 5: Association between the depression score and their sociodemographic variables

Sociodemographic variables	Chi-square value	p-value
Age	2.06	0.15
Education	1.44	0.22
Occupation	0.19	0.65
Religion	0.47	0.48
Residence	0.21	0.64
Income	1.04	0.30
Family type	1.32	0.24
Source of information	0.19	0.66
Pain	3.39	0.06

Duration with cancer	0.02	0.86
Any surgery previously done?	0.002	0.96
Exposed to any radiation therapy?	2.76	0.09
How many times received chemotherapy?	3.43	0.06

**p<0.05(Significant); Df-Degree of freedom=1; Table value=3.84*

DISCUSSION

Many studies have shown that after receiving a breast cancer diagnosis and therapy, between 25% and 33% of patients experience sadness, anxiety, and depression [22]. A research study on female patients with breast cancer in Jordan found that the mean overall HADS score was 18.0±9.0, with abnormal scores on the anxiety subscale for 53% of participants and the depression scale for 45% of individuals. Approximately 14% and 8% of patients developed significant anxiety and sadness, respectively [23]. Such episodes of anxiety and depression affect the QOL of breast cancer patients. Our study revealed that a higher percentage of breast cancer women had poor QOL (84%). A significant negative correlation was observed between depression and OQOL scores (r=-0.07908). Similar results were indicated in a study conducted on 100 women with breast cancer in Iran selected through simple random sampling. An inverse relationship between QOL (r=-0.48, p<0.01) and depression (r=-0.52, p<0.01) was observed by comparing the Pearson correlation coefficient, indicating lower QOL in patients with more anxiety and depression [24].

Purkayastha *et al.* [25] employed the WHOQOL-BREF questionnaire to assess the QOL of study subjects using four domain scores: psychological, physical, environmental, and social relationship. The mean scores (SD) for the areas of physical, psychological, social relationships, and environment were 12.30±1.68, 12.81±1.72, 14.17±2.75, and 14.37±2.12, respectively. Depression was higher in low socio-economic groups as compared to middle and high-socioeconomic groups, but it was not statistically significant. On the other hand, Sathwara *et al.* [26] concluded that women from urban backgrounds had a lower likelihood of presenting with advanced-stage disease than those of rural backgrounds (OR = 0.64; 95% confidence interval [CI]: 0.49-0.84). Likewise, women without formal education had a higher probability of presenting with advanced-stage disease (OR = 1.55; 95% CI: 1.16-2.09). Our study could not find any significant association with the studied sociodemographic factors and other background variables. Such conclusive results could be attributed to the small sample size and selection bias as the subjects were recruited from a single hospital only.

CONCLUSIONS

Our study assessed the levels of QOL among breast cancer patients, revealing poor QOL among the higher percentage of subjects (84%). The maximum score of TQOL among breast cancer patients was 130, while the minimum score was 26, with a mean and SD of 72.04±7.038. A significant negative correlation was found between depression and OQOL scores (r=-0.07908). All the sociodemographic factors and other background variables studied showed a non-significant association with depression scores among the studied subjects.

Further research is required to validate our findings and investigate how they might be applied in therapeutic settings, which might involve a bigger sample of people from different racial and ethnic backgrounds. A customized approach and individualized management therapy by clinicians would improve the general QOL for patients and their families.

CONTRIBUTION OF AUTHORS

Research concept- Shruti, Pushpa, Hanamant, Jayashree
Research design- Jadhav Priyanka A, Sharanu, Mahesh
Supervision- Deelip S. Natekar
Materials- Shruti, Pushpa, Hanamant, Jayashree
Data collection- Jadhav Priyanka A, Sharanu, Mahesh
Data analysis and Interpretation-Shruti, Pushpa, Hanamant, Jayashree
Literature search- Jadhav Priyanka A, Sharanu, Mahesh
Writing article- Shruti, Pushpa, Hanamant, Jayashree
Critical review- Shruti, Pushpa, Hanamant, Jayashree
Article editing- Shruti, Pushpa, Hanamant, Jayashree
Final approval- Deelip S. Natekar

REFERENCES

[1] Magwesela FM, Msemakweli DO, Fearon D. Barriers and enablers of breast cancer screening among

DOI: 10.21276/SSR-IIJLS.2024.10.2.1

women in East Africa: a systematic review. BMC Public Health, 2023; 23(1): 1915. doi: 10.1186/s12889-023-16831-0.

[2] World Health Organization report on cancer; Available at https://www.who.int/newsroom/fact-sheets/detail/cancer.

[3] Swaminathan R, Sankaranarayanan R. Under-diagnosis and under-ascertainment of cases may be the reasons for low childhood cancer incidence in rural India. Cancer Epidemiol., 2010; 34: 107-8.

[4] Arora RS. Why is the incidence of childhood cancer lower in rural India? Cancer Epidemiol., 2010; 34: 105-06.

[5] Gupta A, Shridhar K, Dhillon PK. A review of breast cancer awareness among women in India: Cancer literate or awareness deficit? Eur J Cancer, 2015; 51(14): 2058-66. doi: 10.1016/j.ejca.2015.07.008.

[6] Mathur P, Nath A, Sathish KK. Adolescent and young adult cancers in India-Findings from the National Cancer Registry Programme. Cancer Epidemiol., 2022; 78: 102-24.

[7] Kulothungan V, Sathishkumar K, Leburu S, Ramamoorthy T, Stephen S, et al. Burden of cancers in India–Estimates of cancer crude incidence, YLLs, YLDs and DALYs for 2021 and 2025 based on National Cancer Registry Program. BMC Cancer, 2022; 22: 527.

[8] Alagizy HA, Soltan MR, Soliman SS, Hegazy NN, Gohar SF. Anxiety, depression and perceived stress among breast cancer patients: single institute experience. Middle East Curr Psychiatry, 2020; 27: 1–10.

[9] Vin-Raviv N, Akinyemiju TF, Galea S, Bovbjerg DH. Depression and Anxiety Disorders among Hospitalized Women with Breast Cancer. PLoS One, 2015; 10(6): e0129169. doi: 10.1371/journal.pone.0129169.

[10] Ardebil MD, Bouzari Z, Shenas MH, Keighobadi M. Depression and health related quality of life in breast cancer patients. J Pak Med Assoc., 2013; 63(1): 69-71.

[11] Isfahani P, Arefy M, Shamsaii M. Prevalence of Severe Depression in Iranian Women with Breast Cancer: A Meta-Analysis. Depress Res Treat., 2020; 2020: 56-78.

[12] Akel R. Anxiety, depression and quality of life in breast cancer patients in the levant. Asian Pacific J Cancer Prev., 2017; 18: 2809.

[13] Gangane N, Khairkar P, Hurtig AK, San SM. Quality of life determinants in breast cancer patients in central rural India. Asian Pacific J Cancer Prev., 2017; 18: 3325.

[14] Rabin EG, Heldt E, Hirakata VN, Bittelbrunn CA, Chachamovich E, et al. Depression and perceptions of quality of life of breast cancer survivors and their male partners. Oncology Nursing Forum, 2009; 36: E153–58.

[15] Attari SM, Ozgoli G, Solhi M, Alavi MH. Study of Relationship Between Illness Perception and Delay in Seeking Help for Breast Cancer Patients Based on Leventhal's Self-Regulation Model. Asian Pacific J Cancer Prev., 2016; 17: 167–74.

[16] Zeighami MSH, Ghaffari F. Sexual Dysfunction and Its Correlation with Quality of Life among Women Affected with Cancer. Iran J Obstetrics Gynecol Infertility, 2009; 12: 39–46.

[17] Obaidi JG, Al-Atiyyat NM. Quality of life among primary caregivers of women with breast cancer: a review. Middle East J Cancer, 2013; 4: 45–49.

[18] Lopez V, Copp G, Molassiotis A. Male caregivers of patients with breast and gynecologic cancer: experiences from caring for their spouses and partners. Cancer Nurs., 2012; 35: 402–10.

[19] Hashemi-Ghasemabadi M, Taleghani F, Yousefy A, Kohan S. Transition to the new role of caregiving for families of patients with breast cancer: a qualitative descriptive exploratory study. Support Care Cancer, 2016; 24: 1269–76. 10.1007/s00520-015-2906-3.

[20] Bahrami M, Farzi S. The effect of a supportive educational program based on COPE model on caring burden and quality of life in family caregivers of women with breast cancer. Iran J Nurs Midwifery Res., 2014; 19: 119–26.

[21] Baghcheghi N, Ashktorab T, Seyedfatemi N, Baghestani A. Relationship of Coping Strategies with Quality of Life in Women Living with Husband on Hemodialysis. Sci J Hamadan Nurs Midwifery Faculty, 2017; 25: 9–17.

[22] Burgess C, Cornelius V, Love S, Graham J, Richards M, et al. Depression and anxiety in women with early breast cancer: five-year observational cohort study. BMJ, 2015; 330: 702.

DOI: 10.21276/SSR-IIJLS.2024.10.2.1

[23]Abu-Helalah M, Al-Hanaqta M, Alshraideh H, Alsuhail AI, Almousily OA, et al. Quality of life and psychological well-being of breast cancer survivors in Jordan. Asian Pac J Cancer Prev., 2014; 15: 5927–36.

[24]Sadoughi M, Salehi ZM. The Relationship between Anxiety, Depression, and Quality of Life among Women with Breast Cancer. Int J Academic Res Psychol., 2017; 4(1): 11-19. doi: 10.46886/IJARP/v4-i1/2602.

[25]Purkayastha D, Venkateswaran C, Nayar K, Unnikrishnan UG. Prevalence of Depression in Breast Cancer Patients and its Association with their Quality of Life: A Cross-sectional Observational Study. Indian J Palliat Care, 2017; 23(3): 268-73.

[26]Sathwara JM, Balasubramaniam G, Bobdey SC, Jain A, Saoba S. Sociodemographic Factors and Late-stage Diagnosis of Breast Cancer in India: A Hospital-based Study. Indian J Med Paediatr Oncol., 2017; 3: 277-81.