

Impact of Cervical Cancer on Fatigue Level and Quality of Life in Female Population in a Tertiary Care Hospital: A Cross-Sectional Study

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DOI: <https://doi.org/10.52403/ijrr.20240610>

ABSTRACT

Cervical cancer is the second common female malignant tumor globally which seriously threatens female's health. In 2020, cervical cancer accounted for 18.3% of new cases in India, according to GLOBOCAN. The situation is more alarming in rural areas where women are illiterate, ignorant, poverty, socio-economic status lack the knowledge for detection and early diagnosis. The fatigue is a common and distressing symptom in cancers and also contributes to depletion in health-related quality of life of an Individual. The aim of this study was to assess the Impact of Cervical Cancer on fatigue level and Quality of Life in women with cervical cancer in a tertiary care hospital. Methodology: The study involved 30 cervix cancer patients aged above 18 years receiving anticancer treatment. They were assessed for fatigue severity and quality of life using the Brief Fatigue Inventory and FACT-Cx scale. Results: The study included 23 patients with mean age of 63.30(±11.65) years. 52% experienced severe fatigue, while 48% experienced moderate fatigue. The lowest scores were in emotional and functional well-being, while the highest were in social/family and physical well-being. The FACT-CX score was 99.3±13, there is a significant negative correlation between

fatigue and quality of life in cervical cancer patients. Conclusion: The study concludes moderate to severe levels of fatigue was experienced, which also impacts the quality of life. Fatigue has negative correlation with quality of life in patients with cervical cancer.

Keywords: Cervix cancer, Fatigue, Quality of Life, Gynaecological cancer.

INTRODUCTION

Gynecologic cancers are a common health hazard for women globally. Genital organ cancers are the third most frequent cause of cancer-related death in women. Gynecologic cancer affects the female genital organs, including the vulva, cervix, endometrium, ovaries, and fallopian tubes. Gynecologic cancer has higher incidence and prevalence throughout the world; incidence and frequency are influenced by a person's lifestyle, genetics, body type, and environment ^[1].

As per Globocan 2020, 604,100 new cases of cervical cancer were detected globally in 2020 and 341,831 deaths were attributed to this malignancy. In India, cervical cancer accounted for 9.4% of all cancers and 18.3% (123,907) of new cases in 2020^[2]. Cervical cancer is the second common female malignant tumor globally which seriously threatens female's health.^[3] The

incidence of occurrence is common at ages 35-44, average diagnosed at 50. 5year survival rate for all women. One of the major causes of cancer death in women globally, cervical cancer behaves epidemiologically like a low-infectious venereal illness These are the tumors that start in the lower uterus and spread to the vagina through aberrant cell alterations in the cervix. Cervical spreads through direct extension into the parametrium, vagina, uterus and neighboring organs, i.e., bladder and rectum. It also travels down the lymphatic channels to the regional lymph nodes, specifically, obturator, external iliac and internal iliac, and thence to the common iliac and para-aortic nodes. Distant metastasis to lungs, liver, and skeleton by the hematogenous pathway is a late event [4]. Persistent infection of high-risk human papillomavirus (HPV) has been clarified to be the necessary cause of cervical cancer [3]. Once the patient is diagnosed after investigations (pap smear test, HPV test) and biopsy, the patient is referred to gynecologic oncologist who is specialized in staging and treating cervical and other gynecologic cancers. FIGO Classification is used for staging of cervical cancer. The appropriate staging of cancers would reflect their biology and patterns of spread, offer precise prognostication, and assist therapeutic decision-making. The patient is staged when invasive cancer in the tissue has been diagnosed. Stage is established at the time of the initial diagnosis and should never be altered, even in the event of a recurrence or if more severe disease is found during surgery [5]. Clinical evaluation is used to establish the stage, which is mostly based on the size of the cervix- or pelvic-localized tumor. The symptoms of cervical cancer can range from asymptomatic screen-detected microinvasive illness to abnormal vaginal bleeding, foul-smelling vaginal discharge, pelvic pain, or signs of an advanced disease such vesical- or recto-vaginal fistulae or metastases [6].

Over the past two decades, the number of health-related quality of life (HRQOL) studies measuring the survivor's assessment of their cancer-related outcomes has increased. Conceptually, HRQOL refers to a condition of functional, physical, psychological, social, and family well-being and is multidimensional, subjective, and temporal. Cervical cancer survivors (CCS) have reported severe HRQOL issues related to the disease and negative treatment side effects, according to recent studies. Some studies look at HRQOL as a significant endpoint, while others look at how HRQOL is related to cancer survival. In addition, there is interest in examining how HRQOL outcomes can be used to predict cancer survival. This has sparked interest in the study of the relationship between HRQOL and survival outcomes. One of HRQOL measure for cervical cancer is Functional Assessment of Cancer Therapy–Cervical (FACT-CX) HRQOL scale [7].

The likelihood of survival has increased as a result of improvements in cancer treatment. As a result, an increasing percentage of individuals experience side effects even years after finishing treatment for their disease and go on to become survivors. Cancer-related fatigue is one of the most commonly mentioned side effects across all forms and stages of the disease. A feeling of tiredness or exhaustion is a common definition of fatigue, and about one-third of cancer patients continue to feel this way months or years after their treatment is over. Fatigue is highly prevalent among cervical cancer patients and various treatment modalities and has ranked fourth among the issues experienced, according to the results. Fatigue ranked fourth among the issues experienced, according to the results. Health-related quality of life is greatly impacted by fatigue because cancer patients may become too exhausted to fully engage in everyday activities and perform their prior roles [8].

AIM: To study Impact of Cervical Cancer on fatigue level and Quality of Life in

women with cervical cancer in a tertiary care hospital.

OBJECTIVE:

To find out:

1. the level of fatigue in cervical cancer patients using Brief fatigue inventory
2. the effect of cancer on quality of life in cervical cancer patients using Functional Assessment of Cancer Therapy-Cx (FACT-Cx).

LITERATURE REVIEW

- Yin G, et.al (2016). Survey of cervical cancer survivors regarding quality of life and sexual function. The purpose of study was to investigate the quality of life (QOL) of cervical cancer survivors in China. The Functional Assessment of Cancer Therapy-Cervix (FACT-Cx) Questionnaire was used to assess the QOL of the participants. Spiritual well-being was evaluated with the Functional Assessment of Chronic Illness Therapy-Spiritual Well-being (FACT-Sp). Sexual function was measured with the Female Sexual Functioning Index. The study concludes that The QOL and sexual function of cervical cancer survivors were lower than the general population. Treatment-related complications and sexual dysfunction significantly affected patients' QOL. Having health insurance was associated with better QOL. Sexual function was adversely affected by radiotherapy and radical hysterectomy.
- Systemic review conducted by Pfaendler KS et.al(2015) on Cervical cancer survivorship: Long-term quality of life and Social Support summarizes quality of life data from long-term follow up studies of cervical cancer patients and additionally summarizes small group interviews of Hispanic and non-Hispanic cervical cancer survivors regarding social support and coping.
- Sekse RJ et.al (2014) Fatigue and quality of life in women treated for various types of gynaecological cancers:

A cross-sectional study. The study was done to examine the prevalence of cancer-related fatigue in women treated for various types of gynaecological cancers and, for these cancers, to assess fatigue in relation to distress, health-related quality of life, demography and treatment characteristics and concluded that the findings underscore the importance of screening for fatigue, patient education and symptom management. This should be included in a standard procedure during treatment and follow-up. Both somatic and psychological aspects of fatigue should be emphasised.

MATERIALS & METHODS

Source of Data: The data was collected from all the consecutive patients of cervical cancer referred to community physiotherapy department from Oncology Department of Dr. Balasaheb Vikhe Patil, Rural Medical College, PIMS (DU) Loni (MH).

Method of Data Collection: Questionnaire Method

Type of Data: Quantitative

Study Design: Descriptive, Cross-Sectional Study.

Study Sample: Patients with cervical cancer.

Study Setting: Pravara Rural Hospital.

Study Population: female population with cervical cancer.

Sample Size: 30

Age Criteria: Above 18 years.

Study Duration: 6 months

Material:

1. Consent form
2. Data Collection Sheet
3. Brief Fatigue Inventory
4. FACT-Cx

Outcome Measures

1)Brief Fatigue Inventory:

- It is used to measure fatigue levels.
- It consists of nine items that look at fatigue in past that are rated on a scale 1-10 numeric rating scale where 0 is no fatigue or does not interfere and 10 is

bad fatigue or completely interferes with activity / work.

- The BFI presented adequate values of internal consistency (alpha Cronbach =0.94), substantial reliability [ICC_{2,1}(95% CI) = 0.87 (0.81 to 0.91)] and very good agreement (standard error of measurement = 1% and MDC= - 0.37).

2)FACT-Cx

- FACT-CX is the Functional Assessment of Cancer Therapy-General (FACT-G) with cervical cancer subscale
- It is used to assess the health-related quality of life in women diagnosed with cervical cancer.
- FACT-CX comprises 42 items with a 5-point (0-4: Not at all to very much) Likert scale and is categorized into 5 domains: physical well-being (PWB), social/family well-being (SWB), emotional well-being (EWB), functional well-being (FWB) and cervical cancer subscales (CCS). The range of scores for these domains was 0-28, 0-28, 0-24, 0-28 and 0-60, respectively. The range of total score for FACT-CX was 0-168. A higher score means a higher quality of life.
- Cronbach's alpha coefficients for overall FACT-Cx (0.89).

SELECTION CRITERIA

Inclusion Criteria-

- Minimum age of 18 years.

Women with diagnosed cases according to FIGO classification of cervical cancer.

Patients undergoing chemotherapy or radiotherapy.

Patients having ability to understand and communicate local language.

Patients giving consent to participate in the study.

Exclusion criteria-

Patients with diagnosed malignant disease of reproductive organs other than cervical cancer and previously treated for such disease.

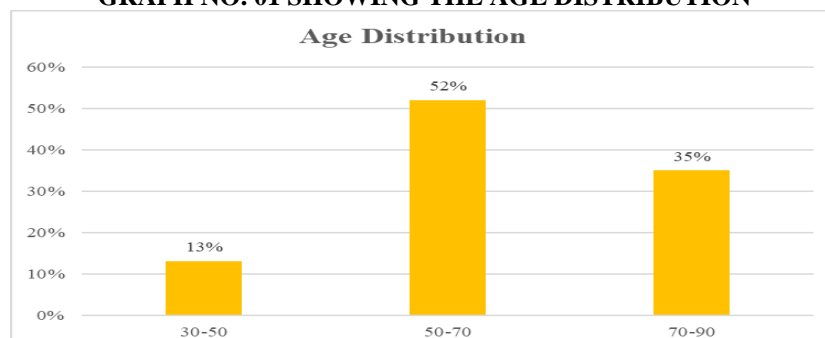
- Other malignant disease concurrent or diagnosed within five years.
- Those having major systemic illness such as cardiac failure, renal failure, or pulmonary edema and psychiatric disorders.
- Patients not willing to participate in the study.

PROCEDURE:

- All the participants were screened according to inclusion and exclusion criteria.
- The purpose of study was explained, written informed consent as well as demographic data was obtained from all the participants.
- The study included women diagnosed with cervix cancer according to FIGO staging.
- The women diagnosed with cervix cancer receiving treatment were assessed for fatigue and quality of life using BFI and FACT-Cx, respectively.

RESULT

GRAPH NO. 01 SHOWING THE AGE DISTRIBUTION



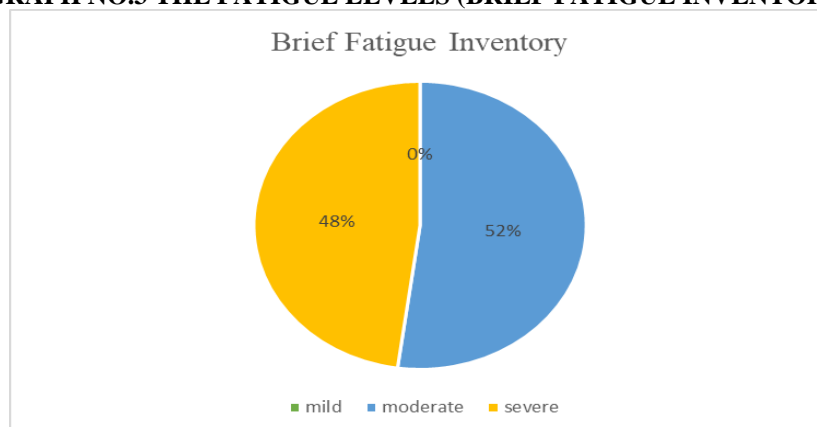
Above graph shows 23 patients out of which lowest age being 38 & highest being 79 years. Out of which 13% patients falls in the category of 30-50 years of age, 52 % between 50-70 years and 35% between 70-90 years respectively.

GRAPH NO.02 SHOWING THE FIGO STAGING DISTRIBUTION



The study showed there were 48% patients in stage II, 43% patients in stage III, 9% patients in stage IV and there were no patients in stage 0 and stage I.

GRAPH NO.3 THE FATIGUE LEVELS (BRIEF FATIGUE INVENTORY)



The study showed that 52% patients experienced severe fatigue and 48% patients experienced moderate fatigue while none of the patient fall under moderated category.

GRAPH NO.4 SHOWING CORRELATION IN BFI AND FACT-CX.

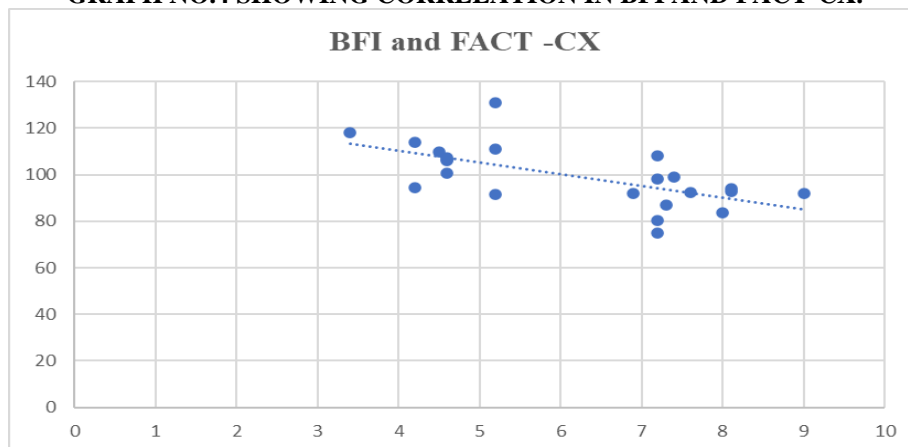


TABLE No. 01: (FACT-CX) SCORES IN WOMEN WITH CERVICAL CANCER

DOMAINS	MEAN	STANDARD DEVIATION	MINIMUM	MAXIMUM	SCORE RANGE
Physical Well Being	16	3.7	4.0	28.0	0-28
Social Well Being	18.1	3.4	2.0	28.0	0-28
Emotional Well Being	12.7	3	6.0	24.0	0-24
Functional Well Being	15.7	3.1	2.0	28.0	0-28
Additional Concerns	36.7	5.2	20.0	60.0	0-60
FACT-CX (Total)	99.3	13	61.0	168.0	0-168

The lowest means of the domains were observed in the emotional well-being (12.7±3), and in the functional well-being (15.7±3.1), and the highest factors were in the social/ family well-being (18.1 ±3.4) and the physical well-being (16±3.7). The additional concerns domain presented a mean score of (36.7±5.2), and the total score of the FACT-Cx was (99.3±13).

TABLE NO.02 THE TABLE REPRESENTS CORRELATION BETWEEN FATIGUE AND QUALITY OF LIFE

		BFI	FACTCX
BFI	Pearson Correlation	1	-.636**
	Sig. (2-tailed)		.001
	N	23	23
FACTCX	Pearson Correlation	-.636**	1
	Sig. (2-tailed)	.001	
	N	23	23

** . Correlation is significant at the 0.01 level (2-tailed).

There is a significant negative correlation between fatigue and quality of life in patients with cervical cancer.

DISCUSSION

The present study was conducted at Community Physiotherapy Department of Dr. APJ Abdul Kalam College of Physiotherapy in association with patients referred from Oncology Department of Dr. Balasaheb Vikhe Patil, Rural Medical College, PIMS (DU) Loni (MH). This was a cross-sectional study conducted for a period of 6 months. Data were collected from the subjects admitted for brachytherapy and chemotherapy. The study included total of 23 patients as per inclusion and exclusion criteria with the mean age of 63.30(±11.65) years. After collecting the demographic data and patient consent fatigue was assessed using Brief Fatigue Inventory Scale and Quality of life using FACT-Cx scale.

Graph 1 shows the age distribution of patients ranging from 38 years to 79 years 13% patients falls in the category of 30-50 years of age, 52 % between 50-70 years and 35% between 70-90 years respectively. Cervical cancer may impact women of any age, but it is more prevalent in those over the age of 30^[9]. Although the average age of patients at diagnosis is around 53 years old, a second incidence peak of cervical cancer occurs between 60 and 70 years old^[10].

Graph 02 shows the FIGO staging distribution of patients where 48% patients were in stage II, 43% patients in stage III, 9% patients in stage IV and there were no patients in stage 0 and stage I which was in contrast to Santos et.al study conducted in Brazil where the results showed that 42% of the patients were diagnosed in the initial stages of CC (up to stage IB).

Graph 3 shows the Fatigue levels of the patients which showed that 52% patients experienced severe fatigue and 48% patients experienced moderate fatigue while none of the patient fall under moderated category. Cancer-Related Fatigue (CRF) is a common symptom experienced by cancer patients and survivors, affecting all ages, genders, diagnoses, stages of disease, and treatment regimens. Unlike typical fatigue, CRF is disproportionate to exertion level and not relieved by rest or sleep. Approximately 50-90% of cancer patients experience fatigue, with the majority undergoing active anticancer chemotherapy or radiotherapy. This condition is distinct from typical fatigue experienced by most people^[11]. Patients undergoing chemotherapy or radiation treatment have elevated cytokine levels, owing mostly to alterations in the hypothalamo-pituitary-adrenal axis and neuronal system that regulate arousal and fatigue. Cancer utilizes scarce physiological

resources for molecular and cellular repair, resulting increased fatigue. Fatigue is caused by the systemic effects of cancer treatment, which cause metabolite accumulation as a result of normal tissue damage. The concept of fatigue as a result of poor coping strategies and extended stress response is essential because it emphasizes the necessity of reinforcement of active or passive coping repertoire in the management of fatigue [12]. In general, the prevalence of fatigue is high among cancer patients, ranging from 4.2% (Calderon et al., 2019) to 90 % (Karthikeyan et al., 2018) with a higher risk among cancer patients with advanced stages or those undergoing chemotherapy.

Table 01 represents (FACT-CX) scores in women with cervical cancer which shows lowest means of the domains were observed in the emotional well-being (12.7 ± 3), and in the functional well-being (15.7 ± 3.1), and the highest factors were in the social/ family well-being (18.1 ± 3.4) and the physical well-being (16 ± 3.7). The additional concerns domain presented a mean score of (36.7 ± 5.2), and the total score of the FACT-Cx was (99.3 ± 13). Our results demonstrate that the best HRQoL domains were physical and social/family well-being, as in the studies of Santos et.al [13], Zhou et. al [10] and of Ding et al.[14] Azizi et.al[15] in their study found similar results for emotional well-being and role functioning but the differences were observed in the domains of physical functioning .The worst scores were noted for emotional well-being domain , which can be related to psychological aspects and depression, because it is observed that women feel more unfit following treatment, mostly concerning housework .QOL encompasses not only patient survival but also social function, mental health, subjective sentiments, and health status across several scales. Quality of life (QOL) is crucial for evaluating medical health services and taking necessary precautions. It aligns with WHO's objective of preventing and treating disease, increasing quality of life, lowering mortality

rates, and promoting mental and physical health. Also, chronic stress can lead to a decline in quality of life, which can have serious consequences for these women's well-being [13].

Graph 4 shows the correlation between BFI and FACT Cx, in this study it was observed that there is a significant negative correlation ($p=0.001$) between fatigue and quality of life which was assessed using BFI and FACT-Cx scales respectively. It signifies that as the fatigue increases quality of life decreases. Karthikeyan et.al [11]. In his study found that CRF was moderately correlated to QOL among the patient's receiving radiotherapy and weakly correlated with chemotherapy and concurrent chemo-radiation groups whereas in the present study we observed that fatigue is significantly correlated to QOL. Muthanna et.al [16] In his study found that the prevalence of fatigue in cancer patients is high and fatigue has a negative impact on QOL of cancer patients receiving chemotherapy, which is consistent with observations of the present study.

CONCLUSION

The study shows that there is significant correlation between fatigue and quality of life in cervical cancer patients. Patients with cervical cancer who were receiving anticancer treatment reported moderate to severe fatigue levels. CRF is a prevalent and frequently underappreciated distressing occurrence. To improve cancer patients' quality of life, adequate care should be provided from the start of therapy. As a result, CRF assessment should begin as soon as the patient is diagnosed with cancer and before the patient begins anticancer therapy. Furthermore, assessing CRF before and after treatment can assist healthcare practitioners in preventing and treating this severe distress symptom.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

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How to cite this article: Sangtani Pranjal, Sukhpreet Pabla. Impact of cervical cancer on fatigue level and quality of life in female population in a tertiary care hospital: a cross-sectional study. *International Journal of Research and Review*. 2024; 11(6): 79-86. DOI: <https://doi.org/10.52403/ijrr.20240610>
