

# Quality of Life (QOL) of Women with Radiation Therapy

Seema Satwe<sup>1</sup>, Jyoti Salunkhe<sup>2</sup>, Vandana Satave<sup>3</sup>

<sup>1,3</sup>Clinical Instructor, Krishna Institute of Medical Sciences, Deemed University's  
KINS, Karad, Maharashtra, India.415539

<sup>2</sup>Associate Professor, Krishna Institute of Medical Sciences, Deemed University's  
KINS, Karad, Maharashtra, India.415539

**Abstract:** ***Aim and Objectives-** To assess the quality of life among women with gynecological cancer before and after receiving radiation therapy, find out an association between quality of life of women after radiation therapy and selected socio demographic variables. **Material and Methods:** Longitudinal panel design with a descriptive approach was adopted with inclusion of 35 women by non probability sampling technique with the use of a standardized questionnaire by (EORTC-QLQ C30 and QLQ CX24) on QOL which comprises functional, symptom and global health status of women receiving radiation therapy at Radiation Oncology Unit. **Result:** majority 16(45.71%) women belonged to the age group 50-60 years, 28 (80%) had parity up to 1-4 time, 51.42% were ever married, 19 (54.28%) were uneducated, 34 (91.14%) were housewives while 12 (34.28%) belonged to income group Rs. 4000-5000/- per month. After radiation therapy on functional scale QLQ C30 5.86% women were declined level of QOL from excellent to good with significant decrease in mean score from 92.37 to 87.17 and on global health status scale 77.14% women shown decline from good to average level. There is symptomatic increase in 2.86% women on QLQ C30 with increase in mean score from 12.005 to 20.00 ( $p=0.001$ ) whereas on QLQ CX24 symptoms were increased in 11.29% with increase in mean score from 10.59 to 12.22 but not statistically significant (0.2156). A significant association was found between age, education and quality of life of women after radiation therapy.*

**Keywords:** gynecological cancer, Radiation Oncology Unit, Radiation Therapy, Quality of life.

## 1. Introduction

Cancer is the leading cause of death in economically developed countries and the second leading cause of death in developing countries [1]. Gynecological cancer is the second most frequent cancer among women worldwide in Africa, South America and Asia including India. Radiation therapy is the main stay of treatment for locally advanced cancer. The ability of Radiation therapy to cure locally advanced cervical cancer is limited by the size of the tumor, because the doses required to treat large tumors exceed the limit of radiation tolerance in normal tissue and the results of Radiation therapy treatment are poor with high failure rates.[2].

Various factors contribute to changes in the quality of life of women with gynecological cancers, functional damage secondary to treatment such as pelvic surgery, chemotherapy and radiation therapy as nausea, vomiting, diarrhea, constipation, mucositis, weight changes and hormonal changes, psychological factors including erroneous beliefs about the origin of cancer, change in self image and self esteem, marital tensions, fears and worries.[3].

Cancer is a major health problem that accounts for 23% of all deaths. Death rate from heart diseases, strokes and other conditions have decreased and death resulting from cancer have raised nearly two fold since the 1970s. This picture is more positive for women with gynecologic cancers, which accounts increased mortality in new cancer cases in women.[4]. Gynecological malignancies are one of the most common affecting cancer in women worldwide. In India, about 1,30,000 new cases of cervix cancer occurs every year and constitute one fifth of the total global burden; its age standardized incidence rate is 30.7 per 100,000 and age-

standardized mortality rate is 17.4 per 1,00,000 which are the highest in south central Asia.[2].

Cancer registries have also highlighted that more than 70% of cancers in females occur in the age group of 35-64, and that these cancers exercise an adverse influence on the productive role of women in our society. Over 70% of patients report for diagnostic and treatment services at an advanced stage of disease, resulting in poor survival and high mortality rates. More than 50% were compliant to treatment protocol [5]. The treatment proposed for this type of cancer is radiation therapy, surgery, chemotherapy or a combination of these options. Despite great developments in diagnostic and therapeutic methods disease and the effects of its treatment still bring important consequences for the lives of these women in many ways their well being and quality of life.[5]. Nurses always for the best possible care of the patient health care provision often focuses on the immediate problem and on the possible intervention to deal with it. The new phenomenon of cancer survivorship means that the emphasis needs to change to focusing on the present need while also bearing in mind the future implications to ensure both life and quality of life [6].

## 2. Literature Survey

In social domain 44% had the perception that family members and friends had with the withdrawn social support. Economic domain shown much reduction by 47.4% to 52.6% and effect on overall living standards with 44.7%. There was significant effect on sexual domain that 28.3% reported marital discordance. Decrease in self esteem in 30.9% and self projection in 36.2% but emotional function not affected. physical functions were affected in 19% - 79%, role functions in 69% - 75%, cognitive functions in 46% - 56%, social functions in 63% - 71% and financial aspects by

63%. On global quality of life 53% and 47% respectively reported high level disruption in overall physical health and quality of life. There is severe deterioration of quality of life occurs as a result of diagnosis of cervical cancer and subsequent therapies [1]. A longitudinal prospective study was conducted to investigate the incidence of acute toxicity of radiotherapy, The incidence of acute toxicity was 93.5% and the most common complaint was lower gastrointestinal (79.6%). A significant increase in QOL scores was observed in the physical and psychological domains, as well as general health and overall QOL at the first clinical visit after treatment. Upper gastrointestinal toxicity ( $p = 0.043$ ) and surgery ( $p = 0.027$ ) negatively affected general health, while improvement in vaginal bleeding ( $p = 0.047$ ) positively influenced general health. It reveals that high incidence of acute toxicity of radiotherapy was observed during radiation therapy and on completion of treatment, QOL improved in gynecologic cancer patients.[8]

The prospective study was conducted to identify the effect for the gynecological cancer found that Patients with high treatment toxicity scores had lower global QoL scores. It shows that treatment with radiotherapy for gynaecological cancer has a negative effect on QoL, most apparent immediately after treatment. Certain late treatment effects have a negative effect on QoL for at least 2 years after radiotherapy. A Modern radiotherapy protocols minimize damage to healthy tissue. This treatment damages any healthy tissue with which it does come into contact leading to possible DNA damage and the possibility of secondary tumor and adverse effect on physical and psychological and physiological process in the women. [9]

A prospective study was conducted to identify the magnitude of fatigue and its implication on the quality of life during radiotherapy suggest that There was significant reduction in the functional scores ( $P < 0.001$ ) of QOL (physical, role and emotional function), which returned to pretreatment level at follow up. In the seventh week impairment of cognitive function ( $P=0.059$ ) was noted. Significant reduction of social function ( $P < 0.001$ ) at second week and global health status ( $P < 0.001$ ) at fifth week was noted while financial difficulty was seen from second week onwards. Fatigue is transiently increased by radiotherapy before reaching pretreatment level after few weeks of completion of radiotherapy [10].

Another study Patients in the Surgery/RT Group reported significantly worse QoL outcomes (lower scores on physical, role, cognitive, and social functioning) compared with patients in the Surgery Group or patients in the Surgery/CT Group. The level of symptoms such as nausea/vomiting, pain, appetite loss, frequent urination ( $p=0.019$ ), leaking of urine ( $p=0.015$ ), and the feeling of a tight vagina ( $p=0.018$ ) was significantly higher in irradiated patients. Concerning sexual functioning, patients in the Surgery/RT Group reported a significantly lower sexual activity rate compared with women in the Surgery Group or women in the Surgery/CT group ( $p<0.05$ ). However, there were no statistically significant differences concerning sexual pleasure and sexual discomfort among the three treatment groups ( $p>0.05$ ). The study concluded that cervical cancer survivors treated with adjuvant radiotherapy are more likely at risk for impaired QoL. Survivors treated

with surgery or adjuvant chemotherapy return to a similar level of QoL as women without a history of cancer. Although the sexual activity rate is lower in irradiated patients their sexual pleasure is similar to patients after surgery and chemotherapy. [11] Cervical cancer survivors had clinically significant worse problems with social functioning, constipation, diarrhea, and difficulties with their finances than controls ( $P < .01$ ). Survivors also reported more severe lymphedema and menopausal symptoms and worse body image, sexual and/or vaginal functioning, and sexual worry ( $P<.01$ ). Anxiety about sexual performance was more problematic in survivors than in controls ( $P < .01$ ), as there was dyspareunia for women who received radiotherapy ( $P < .01$ ). Study revealed that QOL an sexual function was poorer in cervical cancer survivors than in the general female population and that the type of cancer treatment the survivors received had a strong impact on their QOL [1].

### 3. Objectives

- 1) To assess the quality of life among women with gynecological cancer before and after receiving radiation therapy.
- 2) To find out an association between quality of life of women with gynecological cancer after radiation therapy and selected socio demographic variables.

### 4. Material and Methods

A descriptive approach was adopted to study the effect of radiation therapy on quality of life of women with gynecological cancer. Study design selected was longitudinal panel design. Purposive sampling was employed to select 35 women receiving radiation therapy in radiation oncology unit at Krishna hospital, Karad. All women in the study with gynecological cancer as of endometrium, cervix, vulva, vagina, fallopian tubes were included whereas women with cancer ovary and breast were excluded from the study. To assess effect of radiation therapy on quality of life of women with a gynecological cancer baseline data was recorded before starting of treatment and then weekly interval observation was recorded after each 5 settings of the treatment with the use of questionnaire by Eropian Organization of Research and Treatment for cancer. (EORTC-QLQC-30 & CX-24) on quality of life which include functional, symptom and global health status scale. The obtained data was tabulated and analysed in term of objectives of the study using descriptive and inferential statistics.

#### 4.1 Scoring Procedures

The QLQ- C30 is composed of functional scale, symptom scale and a global health status and QLQ-CX24 is composed of functional and symptom scale. All the scales and single-item measures range in score from 0 to 100. A high scale score represents a higher response level. Thus, a high score for a functional scale represents a high/healthy level of functioning & QOL, a high score for the global health status/QOL represents a high QOL, but, a high score for a symptom scale /item represents a high level of symptomatology/ problems or low level of Quality of Life.

## 5. Findings

### 5.1 Findings Related to sample characteristics

Maximum number of women 16 (45.71%) receiving Radiation Therapy belonged to the age group of 50-60 years and none of them were between 20-30 years of age. Maximum women 28 (80%) with 1-4 times parity, 7(20%) with parity five & above and none of them were nulliparous. All of them 35(100%) were married, out of them 17(48.57%) were widows and none of them were unmarried or divorcee. Majority of women 19(54.28%) were uneducated, while 1 (2.85%) were educated upto higher secondary level. Maximum women 34 (97.14%) were housewives while only 1(2.85%) was unskilled worker; none of them were self employed, skilled worker and professional. Majority of women 12 (34.28%) belonged to a income group Rs. 4001-5000/- per month while minimum 3 (8.5%) belonged to a income group less than Rs.2000/- per month.

### 5.2 Findings related to level and before & interval observational score of quality of life in women with Gynecological cancer receiving radiation therapy.

On functional scale QLQ C30 5.86% women were declined level of QOL from excellent to good with significant decrease in mean score from 92.37 to 87.17 ( $p=0.0001$ ), on QLQ CX24 26.71% from good to average level with significant decrease in mean score from 74.25 to 66.54 ( $p=0.0001$ ) and on global health status scale 77.14% women shown decline from good to average level with significant decrease in mean score from 70.31 to 59.95 ( $p=0.0002$ ). There is symptomatic increase in 2.86% women on QLQ C30 with increase in mean score from 12.005 to 20.00 ( $p=0.001$ ) whereas on QLQ CX24 symptoms were increased in 11.29% with increase in mean score from 10.59 to 12.22 but not statistically significant (0.2156).

### 5.3 Findings related to association of QOL with selected variables as per functional global and symptom scale before and after radiation therapy

Significant association found between variable parity of women and quality of life before radiation therapy and age, education of women and quality of life after radiation therapy with computed unpaired, non parametric test value ( $P<0.05$ ) level of significance on functional and symptom scale QLQ-C30. But there is no significant association found between variable income & marital status and quality of life of women with gynecological cancer receiving radiation therapy

**Table 1:** Frequency and percentage distribution of women with gynecological cancer receiving Radiation Therapy according to sample characteristics,  $n=35$

S. No.	Variables	Frequency (f)	Percentage (%)
1.	Age in years		
	20-30	-	-
	30-40	2	5.71
	40-50	5	14.28
	50-60	16	45.71
	>= 60	12	34.28
2.	Parity		
	Nullipara	-	-
	Parous (1 - 4)	28	80
	Grandmultiparous (>=5)	07	20
3.	Marital status		
	Married	18	51.42
	Unmarried	-	-
	Divorcee	-	-
	Widow	17	48.57
4.	Educational status		
	Uneducated	19	54.28
	Primary	03	8.57
	Secondary	12	34.28
	Higher Secondary	01	2.85
5.	Housewife	34	97.40
	Self employed	-	-
	Unskilled worker	1	2.85
	Skilled worker	-	-
	Professional	-	-
6.	Income per month		
	< Rs. 2000/-	3	8.57
	Rs. 2001- 3000/-	3	8.57
	Rs. 3001- 4000/-	9	25.71
	Rs. 4001 – 5000/-	12	34.28
	> Rs. 5000/-	8	22.85

**Table 2:** Area wise mean, median and standard deviation of Quality of Life score of women with Gynecological cancer receiving radiation therapy.  $n=35$

Sr. No.	Area	Parameter	Before R.T.	After 1 <sup>st</sup> week of R.T.	After 2 <sup>nd</sup> week of R.T.	After 3 <sup>rd</sup> week of R.T.	After 4 <sup>th</sup> week of R.T.	Friedman test and P value
1.	Functional health status score on QLQ- C30	Mean	92.37	91.62	89.37	89.57	87.17	Fr = 26.229 P = 0.0001
		Median	92.00	92.00	92	89.0	87	
		Standard deviation	4.790	4.359	6.390	4.748	5.142	
2.	Functional health status score on QLQ- CX24	Mean	74.25	65.6	62.08	65.31	66.54	Fr = 28.158 P = 0.0001
		Median	75.00	67.00	59.00	67.00	67.00	
		Standard deviation	9.70	12.89	9.71	9.20	8.48	
3.	Global Health status score on QLQ-C30	Mean	70.31	63.22	60.4	63.17	59.97	Fr= 28.526 P= 0.0002
		Median	73.00	66.00	58.00	58.00	58.00	
		Standard deviation	12.02	10.64	11.44	8.28	8.08	
4.	Symptom score on QLQ- C30	Mean	12.005	15.54	20.62	17.22	20.00	Fr= 31.201 P= 0.001
		Median	10.00	15.00	17.00	17.00	20.00	
		Standard deviation	6.27	6.60	11.70	6.89	5.08	
5.	Symptom score on QLQ- CX24	Mean	10.57	12.37	11.6	11.57	12.22	Fr= 5.788 P= 0.2156
		Median	9.00	11.00	11.00	11.00	11.00	
		Standard deviation	4.85	4.18	5.04	4.51	4.71	

Key: Fr- Friedman value and RT- Radiation Therapy

## 6. Discussion

In the present study among women with gynecological cancer receiving radiation therapy (n=35) most 16(45.71%) women belonged to age group of 50-60 years. Similar findings were noted in the study conducted to compare QOL in women with gynecological cancer to other population by Greimel and Colleagues, where mean age of women was calculated to be 55 years. [13] In the present study most women 18(51.42%) with gynecological cancer receiving radiation therapy were ever married. In a study conducted in Case Western Reserve University, Cleveland, Ohio, USA on Baseline characteristics influencing QOL in women undergoing gynecologic oncology surgery, the sample comprised of most (58%) women who were married. In this study majority of women 28(80%) had parity up to 4 times while contradictory findings were observed in a study undertaken to determine the extent to which diagnosis and treatment of inoperable cervical carcinoma affects QOL at Kenyatta where 50% of women had at least five previous deliveries. In present study majority 19(54.28%) were uneducated and 34(97.14%) were housewives similar findings were found in a study [15] conducted on women with inoperable cervical cancer and their QOL where one fifth of the clients had no education at all and only 46.6% had secondary education and above and just one third had no gainful employment. In this study maximum 12(34.28%) belonged to income group Rs. 4000-5000/- per month. and remaining were in Rs.  $\leq$  2000 – 4000/-. In the study<sup>16</sup> undertaken to identify problems related to long term QOL and sexual functioning in cervical cancer survivors, samples included belonged to income group of Rs.  $\geq$  2000/- month.

### 6.1 Findings related to effect of radiation therapy of QOL before and after treatment

The mean score of QOL after radiation therapy (87.17) was lower than the mean score of QOL before radiation therapy (92.37). The repeated measures ANOVA with Friedman test showed extremely significant reduction in QOL (P=0.0001) as per functional scale QLQ –C30. As per functional scale QLQ-CX24 Mean QOL score after radiation therapy (66.54) showed much reduction than before (74.25). It reflected extremely significant reduction in QOL (P=0.0001). The mean QOL score on Global health status score was (59.97) after radiation therapy and (70.31) before radiation therapy showing there is significant reduction in QOL (P=0.0002). On symptom scale QLQ-C30 Mean QOL score after radiation therapy (20.00) was higher than the mean score of QOL before radiation therapy (12.00). It shows increased symptomatology and by that reduction in QOL (P=0.001). Only on symptom scale QLQ-CX24 quality of life score before and after radiation therapy did not show significant reduction (p=0.2156). Similar findings found in a study<sup>17</sup> on physical morbidity by Klee.etal. showed that most of the patients experienced high level of side effects shortly after radiation therapy, patients also shown tiredness and weakness initially in high extent 40-50% shown persistent tiredness and lack of energy.

### 6.2 Findings related to association of QOL with selected variables as per functional global and symptom scale before and after radiation therapy

The findings of the study showed significant association of variable parity before radiation therapy and Age and education after radiation therapy with quality of life score of women receiving radiation therapy (P<0.05) level of significance on functional and symptom scale QLQ-C30. But no significant association was found in between income & marital status and quality of life score of women with gynecological cancer receiving radiation therapy. Similar findings found in a study[18] on factors predicting the change of symptom distress among Thai women with cervical cancer where education of women shown association with symptom distress, while age, marital status, family caregivers and financial status did not show association with symptom distress.

## 7. Conclusion

There is evident reduction in the QOL score including physical, physiological and psychosocial aspects of life on all scales used for data collection

### Ethical clearance

Ethical clearance was obtained from institutional ethical committee before conducting study

## 8. Future Scope

### 8.1 Nursing Education

Nurse has a crucial role in providing health information to her patients as well as their caregiver which is possible after the assessmental findings of the every individual. Finding of the study can be used by the nurse educators to plan areas of assessment of patients with cancer to evaluate quality of life and quality care.

### 8.2 Nursing Research

The present study contributes to the body of the knowledge and skill of nursing. The findings of the study have added to the nursing literature. Further investigators can use the findings and methodology as a reference material. It highlights the areas which require future exploration. This finding can help the future investigator to support the study for newer areas.

### 8.3 Nursing Service

Nursing services includes preventive, promotive, curative and rehabilitative services. Nurses have an important role in health education about cancer and treatment modalities and effects on the quality of life. The findings of the study highlight the areas of health education and health assessment to improve the quality of life of patients with cancer. Nurses can guide the care givers for the improvement of the quality of life of the individual with cancer and help the patient and caregiver to overcome difficulties they face regarding cancer and its treatment with proper communication.

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## Author Profile



**Seema M. Satwe** is working as Clinical Instructor in Krishna Institute of Medical Sciences Deemed University Krishna Institute of Nursing Sciences Karad Dist-Satara (India) 415539.



**Jyoti Salunkhe** is working as Associate Professor, Krishna Institute Of Medical Sciences Deemed University, Krishna Institute of Nursing Sciences Karad Dist-Satara (India) 415539.



**Vandana U. Satwe** is working as Clinical Instructor, Krishna Institute of Nursing Sciences, Krishna Institute of Medical Sciences Deemed University, Karad Dist-Satara (India) 415539