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Research Article

IMPROVE QUALITY OF LIFE OF PATIENTS WITH CERVICAL CANCER: AN APPLICATION OF ROY'S ADAPTATION MODEL

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ABSTRACT

Introduction: Cervical cancer has created a devastating impression on women's lives worldwide. The diagnosis and management of cervical cancer can have a major impact on every aspect of a patient's quality of life. The use of Roy's Adaptation Model helps to increase the compliance and life expectancy, thereby helps in improving the quality of life. **Aim:** To assess the effectiveness of Roy's Adaptation Model to improve the quality of life of patients with cervical cancer. **Materials and Methods:** Quasi Experimental Research Design was used. 30 cervical cancer patients, who met the inclusion criteria, were recruited by non probability purposive sampling technique. Nursing Assessment Tool was prepared according to Roy's Adaptation Model. Reliability of the tool was found to be 0.95. After completing the assessment, maladaptive behaviors of the patients were determined. Oral counseling and an information booklet based on Roy's Adaptation Model was given. Post assessment was carried after two weeks. **Results:** Findings revealed that, before the application of Roy's Adaptation Model, the majority (66.7%) of the samples had an average quality of life, 23.3% of them had good quality of life and 10% of the cervical cancer patients had poor quality of life. After the intervention, 66.7% had good quality of life and 33.3% had an average quality of life. Paired t-test was done for assessing the effect of Roy's Adaptation Model on quality of life. Average quality of life score for cancer patients increased after the post test and therefore, the null hypothesis was rejected. Roy's Adaptation Model was found to be significantly effective in improving the quality of life of patients with cervical cancer. Association between quality of life of cervical cancer patients with selected demographic variables was assessed using Fisher's Exact test. Marital status was found to have significant association ($p < 0.005$) with the quality of life of patients with cervical cancer.

INTRODUCTION

Cervical cancer is one of the gravest threats to women's lives. Cervical cancer occurs when abnormal cells in cervix grow out of control. It is one of the world's deadliest, but most easily preventable forms of cancer for women, which is responsible for more than 270,000 deaths annually, in which, 90% of them are in low- to middle-income countries [1].

According to the latest Globocan statistics (International Agency for Research on Cancer and World Health Organization, 2014), Cervical cancer is the fourth most common cancer in women worldwide. 2,88,000 women worldwide die of cervical cancer and at least 80% of deaths are due to cervical cancer occurring in the developing countries [2,3].

Cervical cancer is the second most common cancer in India in women, accounting for 22.86% of all cancer cases in women and 12% of all cancer cases, in both men and women. One woman dies of cervical cancer every 8 minutes in India. The latest data projected its incidence that in every one lakh women, 13.5% are affected in Pune, followed by New Delhi (12.9%), Mumbai (11.8%) and Thiruvananthapuram (9.6%). In urban areas, cancer of the cervix accounts for over 40% of cancers while in rural areas, it accounts for 65% of cancers[4,5,6].

Women with cervical cancer, now have relatively good survival rates. It has driven the paradigm in cancer care from a medical illness model to a nursing wellness model, which is concerned with the quality of women's lives with cancer as well as the length of survival. Therefore, the assessment of quality of life among cervical cancer survivors is increasingly paramount for healthcare professionals The elite group of women would require awareness on cervical cancer and its prevention with the conduct of some awareness programs [7,8].

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Although, the diagnosis and treatment of cervical cancer have been developed recently, there are important consequences from the disease and its treatment among survivors, especially the impact on quality of life (QOL). The chronic nature of the disease can affect the QOL of these patients and their families. These therapies could damage the vaginal mucosa and epithelium. Patients taking chemotherapy elicit side effects like nausea, vomiting, diarrhea, constipation, weight changes and hormonal changes. In addition, psychological factors are usually involved in these patients, including disbelief about cancer, unable to cope up with the condition, changes in self-image, low self-esteem, marital tensions, fears and worries. This can drastically affect the patients' QOL. Nurses' knowledge of these factors and adaptation models will enable them to help the patients to adapt effectively to the illness [9,10,11].

Nurses' providing holistic care in the care of women with cervical cancer is very important. Nurses can achieve in providing holistic care only with the use of nursing models. By using these models, nursing activities shift away from being service-centered to serving in a patient-focused manner. In addition, basic concepts and relationships between concepts are determined, problems are identified and solutions can be developed. In this way, nurses focus on the role of nursing and its applications rather than medical practice [11,12,13].

Models not only ensure purposeful, systematic, controlled and effective patient care, but also create a common language between the health care providers and the patient. In addition, it helps nurses to organize daily care of the patients and creates the opportunity to give high quality care. The practice and use of these nursing models in nursing practice is not very common [14].

The widely used models in nursing practice is Roy's Adaptation Model (RAM). Roy's Adaptation Model is one of the most useful conceptual frameworks that guide nursing practice, directs research and influences education. RAM has been contributing to nursing practice, research, education and management It focuses on individuals' adaptation to changeable environment and guides the assessment of individuals' adaptation. RAM enhances the nurses' abilities to improve person interaction with the surrounded environment to provide an effective adaptation. The RAM has a consistent nursing process, that directs nursing practice toward providing a holistic care for patients. In India, the use of models in nursing practice and research has not gained much importance. Nurses' providing care to patients by using a model will provide holistic care. There is significant gaps noted that no nursing models were used to improve the quality of life in cervical cancer patients. The findings have raised the importance for the investigator to study the quality of life of patients with cervical cancer in a comprehensive approach using the famous nursing model [15,16].

Objectives

1. To determine the quality of life of patients with cervical cancer
2. To evaluate the effectiveness of Roy's Adaptation Model on quality of life of patients with cervical cancer.
3. To associate the quality of life of cervical cancer patients with selected demographic variables.

MATERIALS AND METHODS

Research Approach

Research approach used in this study was Quantitative Approach.

Research Design

Quasi Experimental Design was adopted to assess the application of Roy's Adaptation Model for improving the quality of life of patients with cervical cancer.

Setting of the Study

The present study was undertaken in different hospitals of Pune City.

Population

Population for the present study were patients with cervical cancer.

Sample

The sample consisted of Stage I and Stage II cervical cancer patients.

Sample Size

The total sample size of this study was 30.

Sampling Technique

Non probability purposive sampling technique was adopted.

Sampling Criteria

Inclusion Criteria

- Cervical cancer patients with the age of 30-65 years admitted in hospitals.
- Patients diagnosed with Stage I and Stage II Cervical Cancer.
- Patients undergoing chemotherapy and radiation treatment for cervical cancer.

Exclusion Criteria

- Cancer patients who are undergoing treatments for other disease conditions.
- Patients diagnosed with any other malignancy, other than cervical cancer.
- Cancer patients who are not willing to participate.

Data Collection Tool

Nursing Assessment Tool based on Roy's Adaptation Model was selected to determine the quality of life of cervical cancer patients. The tool was developed by the investigator and validated by the subject experts and guide [17].

Description of the Tool

Nursing Assessment Tool

A Nursing Assessment tool was prepared according to Roy's Adaptation Model, which included the 4 modes: Physical-Physiological mode, Self Concept Mode, Role Function Mode and Interdependence Mode.

- ***Physical- Physiological Mode:*** 9 items with sub items
- ***Self Concept Mode:*** 2 items, which included a numerical pain scale and a 5 point Likert scale, to assess the self concept behavior of the participants.
- ***Role Function and Interdependence Mode:*** Dichotomous questions assessing the role function and interdependence of the study subjects and consisted of a total of 10 questions.

Content Validity

Content validity of the tool was established by 15 experts from various fields of expertise.

Reliability

The reliability of the tool was established by using Split half technique and Correlation Coefficient. The reliability of the nursing assessment tool was found to be 0.95. Hence, the tool was found to be highly reliable.

Pilot Study

Pilot study was conducted on 10 subjects.

RESULTS

The collected data were analyzed, organized and presented under the following sections:-

Section I: Description of Samples Based on Their Demographic Variables and Clinical Data

Table 1 Description of samples based on their personal characteristics in terms of frequency and percentages

N=30

DEMOGRAPHIC VARIABLE	FREQ	%
AGE		
30- 40 years	6	20.0%
40- 50 years	10	33.3%
50-60 years	8	26.7%
> 60 years	6	20.0%
MARITAL STATUS		
Married	21	70.0%
Divorced	3	10.0%
Widow	6	20.0%
EDUCATION LEVEL		
Diploma	8	26.7%
Graduate	9	30.0%
Post Graduate	3	10.0%
Others	10	33.3%
OCCUPATION		
Employed/ Full time	6	20.0%
Employed/ Part Time	6	20.0%
Homemaker	18	60.0%
MONTHLY FAMILY INCOME		
< Rs. 10,000	6	20.0%
Rs. 10,000 - 30,0000	15	50.0%
Rs. 30,000 - Rs. 60,000	6	20.0%
> Rs. 60,000	3	10.0%
DURATION OF ILLNESS		
Less than 1 year	4	13.3%
1- 3 years	17	56.7%
3-6 years	9	30.0%
BODY MASS INDEX		
Underweight (16-18.5 kg/m^2)	9	30.0%
Normal (18.6- 25 kg/m^2)	14	46.7%
Overweight (26 - 30 kg/m^2)	6	20.0%
Obese (31 - 35 kg/m^2)	1	3.3%

Table 1 depicts that the majority (33.3%) of the study samples were in the age group of 40-50 years, 26.7% of them had age 50-60 years and an equal number (20%) of the samples had age 30-40 years and above 60 years. The study revealed that most of the samples were in their menopausal age. The findings also showed that the majority (70%) of the samples were married, 10% of them were divorced and 20% of them were widowed. Regarding their educational status, most (33.3%) of the samples had only primary and secondary schooling, while 26.7% completed their diploma, 30 % were graduates and 10% were postgraduates. Majority of the cervical cancer patients (60%) were homemakers, 15 (50%) had a monthly family income of Rs. 10,000 - 30,000, 17 (56.7%) had a duration of 1-3 years of illness, and 14 (46.7%) had a normal body mass index.

Table 2 Description of samples based on their clinical characteristics N=30

CLINICAL VARIABLE	FREQ	%
STAGING OF CANCER		
Stage 1	3	10.0%
Stage 2	27	90.0%
CHEMOTHERAPY		
Yes	19	63.3%
No	11	36.7%
RADIATION		
Yes	20	66.7%
No	10	33.3%
CRYOTHERAPY		
Yes	1	3.3%
No	29	96.7%

The majority (90%) of the study participants had stage II cancer and 63.3% were taking chemotherapy and radiation. Since cryotherapy is an expensive treatment modality, many of the study participants were not taking such treatment.

Section II: Analysis of data related to the quality of life of patients with cervical cancer N=30

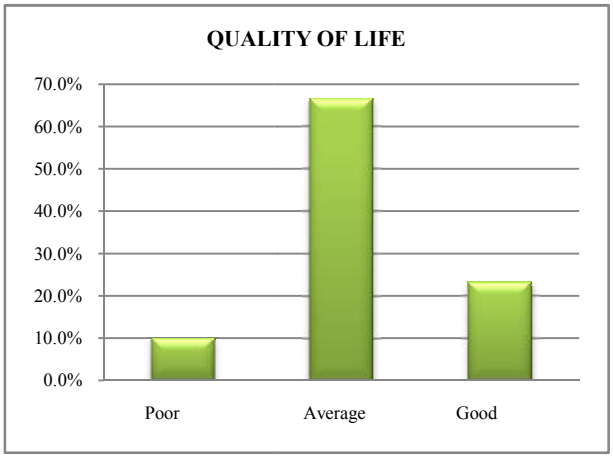

Fig. 1 Quality of Life of patients with Cervical Cancer before the application of Roy's Adaptation Model

(66.7%) of the study samples had an average quality of life, 23.3% of them had good quality of life and 10% of the cervical cancer patients had poor quality of life.

Section III: Analysis of Data Related To the Effect of Roy's Adaptation Model on Quality of Life of Patients With Cervical Cancer

Paired t-test was done for assessing the effect of Roy's Adaptation Model on quality of life of patients with cervical cancer.

Table 3 Effect of Roy's Adaptation Model on quality of life of patients with cervical cancer N=30

Quality of life	Pretest		Posttest	
	Freq	%	Freq	%
Poor (Score 0-43)	3	10.0%	0	0.0%
Average (Score 44-86)	20	66.7%	10	33.3%
Good (Score 87-130)	7	23.3%	20	66.7%

In pretest, 10% of the cervical cancer patients had poor quality of life, 66.7% of them had an average quality of life and 23.3% of them had good quality of life. In posttest, 33.3% of them had an average quality of life and 66.7% of them had good quality of life. This indicates that the quality of life of cancer patients improved remarkably after Roy's the apaplication of Model.

N=30

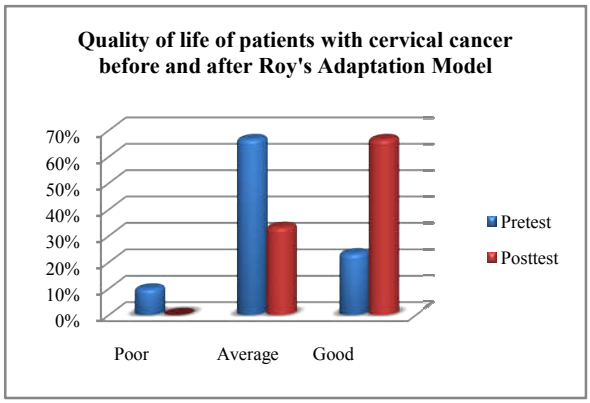

Fig. 2 Quality of Life of patients with Cervical Cancer before and after the application of Roy's Adaptation Model

Table 4 Paired t-test for effect of Roy's Adaptation Model on quality of life of patients with cervical cancer N=30

	MEAN	SD	t	Df	p-value
PRETEST	71.5	19.2	8.9	29	0.000
POSTTEST	92.1	12.3			

Paired t-test was applied to assess for the effect of Roy's Adaptation Model on quality of life of patients with cervical cancer. Average quality of life score for cancer patients was 71.5 which increased to 92.1 in posttest. t-value for this comparison was 8.9 with 29 degrees of freedom.

Corresponding p-value was small (< 0.05), the null hypothesis was rejected. Roy's Adaptation Model was found to be significantly effective in improving the quality of life of patients with cervical cancer.

N=30

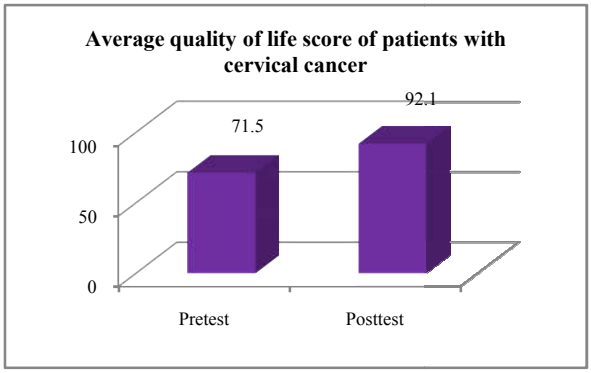

Fig 3

Section IV: Analysis of Data Related To The Association Between Quality of Life of Cervical Cancer Patients With Selected Demographic Variables

Table 5 Fisher's exact test for association between quality of life of cervical cancer patients with selected demographic variables

N=30

Demographic variable		Average	Good	Poor	p-Value
Age	30- 40 years	3	3	0	0.194
	40- 50 years	7	3	0	
	50-60 years	6	1	1	
	> 60 years	4	0	2	
Marital Status	Married	16	5	0	0.019*
	Divorced	2	1	0	
	Widow	2	1	3	
Education Level	Diploma	5	2	1	0.461
	Graduate	7	2	0	
	Post Graduate	1	2	0	
	Others	7	1	2	
Occupation	Employed/ Full time	5	1	0	0.864
	Employed/ Part Time	4	2	0	
	Homemaker	11	4	3	
Monthly Family Income	< Rs. 10,000	4	0	2	0.271
	Rs. 10,000 - 30,0000	11	3	1	
	Rs. 30,000 - Rs. 60,000	3	3	0	
	> Rs. 60,000	2	1	0	
Duration of illness	Less than 1 year	3	1	0	0.654
	1- 3 years	11	5	1	
	3-6 years	6	1	2	
Body Mass Index	Underweight (16-18.5 kg/m^2)	6	2	1	0.958
	Normal (18.6- 25 kg/m^2)	8	4	2	
	Overweight (26 - 30 kg/m^2)	5	1	0	
	Obese (31 - 35 kg/m^2)	1	0	0	

**** p <0.005, Statistically significant***

Since p-value corresponding to marital status is small (less than 0.05), marital status was found to have significant association with the quality of life of patients with cervical cancer.

DISCUSSIONS

The present research was conducted to determine the effects of RAM-guided education on promoting the adaptation of cervical cancer patients. The present study outlined that the average quality of life score for cancer patients was 71.5 which increased to 92.1 in post test using the paired t -test. Since the p-value was small (< 0.05), the null hypothesis was rejected. Roy's Adaptation Model was found to be significantly effective in improving the quality of life of patients with cervical cancer. Similar results have also been reported in other studies which are in line with the results of this research. The results showed that RAM based counselling and education plan had been able to improve the adaptation of patients with cervical cancer. According to RAM, coping processes consist of two:- Regulator and Cognator Subsystems. Adaptation occurs when the Cognator and Regulator subsystems are stimulated, resulting in behavior changes measured in physiologic and psychosocial modes. The proper response to these subsystems to the external and internal stimuli results in adaptive behaviors [18,19].

Roy emphasizes that physiologic adaptation is a factor that stabilizes the chronic disease process and prevents its complications. This finding could be consistent with studies investigating the effectiveness of educational plans in cardiac failure and chronic pulmonary disease. Patient education can

improve illness perception, support self-care behaviors and help acquire skills to cope with cancer. It must be, therefore, considered as an important part of cancer treatment. The results showed that physiological adaptation was improved following nursing education [20, 21,22,23].

The present study showed that RAM-guided intervention had a significant effect on the patients' role function. RAM-guided education increases patients' knowledge, controls the situation, and consequently promotes the role function. A significant improvement was reported in self-concept of patients with hemodialysis and COPD after conducting RAM-guided patient education. Naeim Hassani *et al*. in a study on the effect of an educational program based on RAM on the mental adaptation of patients with heart failure also showed a significant decrease in maladaptive behaviors in the self-concept of the intervention group [20,24].

Cunnigham evaluated the application of RAM when caring for a group of women experiencing changes associated with menopause. The Roy model guided the assessment of the members' levels of adaptation and facilitated the management of stimuli to promote their adaptation. Nursing interventions focused on issues surrounding menopause, including disturbances in body image and social isolation [25].

It seems that, if the educational plan is executed in a long term and experiences of other healthcare personnel, such as psychologists and social workers are used, there may be more evident changes in adaptation of patients in these modes. In fact, there is a need for more specialized interventions to achieve more changes in modes, particularly self-concept and interdependence modes. These patients need more social, family and emotional supports and execution of many interventions was beyond the capacity of the researcher considering the term of study.

The limitations of this research were the short term of the educational course and follow up of the samples and small sample size. It is recommended that similar studies replicate with larger sample sizes and long-term follow-ups.

CONCLUSION

RAM-guided education given to the cervical cancer patients had a positive effect on all the four modes as well as on the total score of adaptation. The present research can be regarded as a basis of future studies. Modification of cervical cancer health status is valuable. Health care providers, especially nurses, should pay close attention to this issue in their planning for these patients' health promotion. As Roy model-based nursing care, is a non-invasive, method in control of physical and psychological problems and can be used for chronic and palliative patients and their problems, especially for cancer patients, to increase their adaptation. According to Roy, it is the role of the nurse to promote adaptation in all four modes, thereby enhancing the quality of life.

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