

# Factors influencing Patient's Quality of Life (QoL) Undergoing Cancer Treatment- a Descriptive Exploratory study

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## Abstract

**Background & Objectives:** Cancer is the major health problem in developed and developing countries. With the advent of treatment like chemotherapy and radiotherapy, survival rates of many cancers have increased, but patient may experience side effects from the disease itself or from treatment which can eventually hinder patient's quality of life. The present study was planned to assess the quality of life among cancer patient undergoing cancer treatment in selected hospitals of Gangtok, East Sikkim. **Methods:** Investigator adopted the descriptive exploratory research design, where 100 cancer patients, within the age group of 18 years or above, either hospitalized or attending day care services and undergoing chemotherapy were selected through purposive sampling technique. The data was collected through english version of European Organization for Research and Treatment of Cancer (EORTC C-30) for which validity and reliability was established. **Results:** Majority (42%) of the cancer patients were in the age group of  $\geq 59$  years and 89% had received chemotherapy, ranging from 0 to 3 cycles (39%). Majority diagnosed with carcinoma of the gastro intestinal tract (45%) followed by reproductive tract (30%). The cancer patients undergoing cancer treatment had average quality of life. General health/quality of life was significantly different depending on age, place of habitat, therapy history, type of chemotherapy received ( $p < 0.05$ ), functional quality of life with type of family, type of chemotherapy ( $p < 0.05$ ), symptom-related quality of life with marital status, educational status, type of family and diagnosis of site ( $p < 0.05$ ) and financial difficulty with sex of the cancer patients ( $p < 0.05$ ). **Conclusions:** This study shows cancer patient had average quality of life. Thus is necessary to identify factors influencing quality of life among cancer patients to increase the effects of intervention to reduce helplessness and explaining power to improve health promotion behavior.

**Key words:** Cancer, Chemotherapy (CT), Quality of life (QoL), cancer treatment, Neoplasms, Drug therapy

## Introduction

Globally a new trend has been identified between the shifting of communicable to non-communicable diseases. The non-communicable diseases are increasingly recognized as a major cause of morbidity and mortality which is accounts for about 60% of deaths worldwide.<sup>1</sup> Cancer has become one of the ten leading causes of death in India.

In India it was predicted that the total cancer burden irrespective of the sites will increase from 7 lakh new cases per year to 14 lakh by 2026. National Institute of Cancer Prevention and Research under Ministry of Health and Family Welfare, Government of India, estimated that the number of people living with the cancer is around 2.5 million in India and every year more than 7 Lakh new cancer patients registered with current cancer-related deaths is 5, 56,400.<sup>2,3</sup>

North Eastern States of India, located in the Himalayan Mountains out of eight states, Sikkim states is the one with a very small population of 6,10,577 (2011 census) which is also considered as the India's least populous state and with an area of 7096 sq. km. it is the second smallest state after Goa.<sup>4</sup> The Population Based Cancer Registry (PBCR) was established in Sikkim in July 2003 under the National Cancer Registry Programme (NCRP) of Indian Council of Medical Research (ICMR) at Gangtok. The registry covers the entire state of Sikkim. The state of Sikkim does not have any cancer treatment facility but follow-ups are done on most of the patients diagnosed with cancer by keeping in touch with the cancer hospitals located in Kolkata, New Delhi, Mumbai and Siliguri.<sup>5</sup>

Many management options for cancer are available including chemotherapy and other methods.<sup>11</sup> The cancer treatment leads to side effects which generally depend on the type of therapy being offered. Most side effects cease after treatment. Although uncommon, some treatments may produce long-term effects which change the Quality of life.<sup>6</sup> Nayak M G, George A et al. conducted a study to assess the quality of life by interview technique using structured and validated interviewed schedule among 768 cancer patients selected through convenient sampling technique and the results show that out of 768 cancer patients, 82% of them had low quality of life which was influenced by their symptoms.<sup>7</sup>

Quality of Life is an important parameter in assessment of each patient's sense of physical, emotional and psychosocial wellbeing. A number of factors influence the Quality of Life. Quality of life also changes significantly over time and with treatment and acts as a surrogate marker of the patient's global health status.<sup>8</sup>

A cross-sectional study conducted by Heydarnejad MS, Hassanpour Dehkordi A, Solati Dehkordi K<sup>9</sup> 200 cancer patients with solid tumors to assess the quality of life at the different chemotherapy cycles. The data was collected through European Organization for Research and Treatment of Cancer Quality of life Questionnaire to measure quality of life and the results showed a significant difference between the level of quality of life in patients with  $\leq 2$  chemotherapy cycles or with 3-5 cycles.<sup>10</sup>

The potential problem faced by the long term cancer survivors are in the areas of emotional support, social, health habits, spiritual, philosophical view of life and change in body image is a concern. Many studies show good or adequate overall quality of life in these patients. However, among long-term survivors, psychosocial issues and physical symptoms such as pain and lymphedema, particularly the adverse effects of systemic adjuvant therapy (chemotherapy) on quality of life still persist.<sup>11,12</sup>

The real goal for cancer therapy is not only to cure the cancer but to increase the survival rate and to minimize the potential symptoms and enhance the quality of life. In other words, if the quality of life is better than it directly increases the patients' adaptation and high desire for the continuing of the therapy. Higher quality of life leads patients to complete therapy with the lowest harm, control experienced symptoms and overcome these symptoms.<sup>13</sup>

## Materials and Methods

The present study was planned with the aim to determine the quality of life of cancer patients with different Cancer treatment. Non experimental survey approach with Descriptive exploratory research design was used to assess the difference in quality of life domain of cancer patient undergoing different cancer treatment and determine association between characteristics of cancer treatment with socio-

demographic variables cancer patient. The study was conducted in Hospital of Sikkim in 2018. Purposive sampling technique was used to select both male and female cancer patients within the age group of 18 years or above, diagnosed as cancer without differentiating the cancer type, either hospitalized or attending the day care services and undergoing cancer treatment during the period of data collection. Cancer patient who were mentally incompetent patients and not adherent to the treatments were excluded from the study.

The data was collected through structured interview technique. One predesigned structured tool and one standardized tool was used to assess the quality of life of cancer patients undergoing cancer treatment for which validity and reliability was established. The permission was taken from the Hospital authority.

Tool I consists of two sections, Section I consists of socio-demographic variables to collect the background information in relation to Age, religion, marital status, educational status, occupational status, type of family, Source of Income, Residence, Socio Economic Status, first diagnosis of cancer, Any complementary therapy, religious and cultural rituals and Section II consists of Predesigned questionnaires to identify characteristics of cancer treatment in relation to Therapy history, Type of cancer treatment received, Chemotherapy cure cycles, Diagnosis of the site, Type of chemotherapy, Duration of disease (Time since diagnosis in months). Tool II consist of Standardized tool for assessing Quality of life of cancer patient through The European Organization for Research and Treatment of Cancer quality of life Questionnaire (EORTC QLQ-C30) was used to measure the quality of life in the cancer patients.

The tool consisted of 53 questions and had arranged into 5 domains i. Demographic data ii. Characteristics of cancer treatment, iii. Functioning

scales, iv. Patient's general conditions, patient's physical activities, social status and occupational function and symptoms Scale. Each question had an equal value and the quality of life is quantified as the sum of the scores for all domains. The classification of the scores as favorable, fairly favorable, and favorable. The higher scores on this scale represent a better quality of life. There were few questions on different symptoms like pain, loss of appetite, fatigue, insomnia, dyspnea, and financial difficulties. A low score indicates better quality of life. The questionnaire consists of two questions on global health status, with a score of 1-7, on overall health and overall quality of life. The raw scores were first calculated and then it was converted to percentage.

Reliability of the tool was tested by Intra-rater method for socio-demographic profile and characteristics of cancer treatment whereas Cronbach's Alpha test was used for attitude scale ( $r=0.83$ ). Ethical permission was taken from the Institutional Review Committee. Written consent was obtained from the cancer patient prior to the interview. The data was analysed using IBM SPSS statistics 16 windows (SPSS Inc., Chicago, USA). Various statistical analyses were performed to analyse the data. The Chi-square analysis was used to determine the degree of association. Statistical difference was considered significant as the p-value was less than 0.05 at 95% confidence level

## Results and Discussion

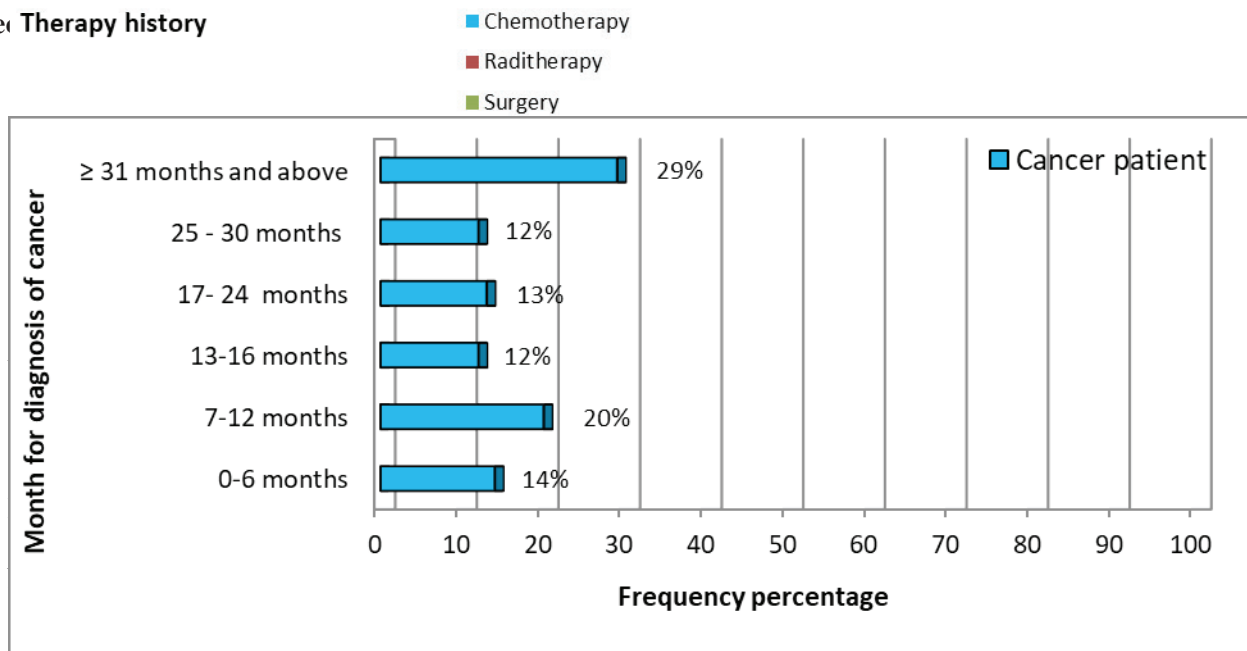
### Section I: Findings related to socio-demographic variables of cancer patients undergoing cancer treatment in selected hospital of Sikkim

Majority of the cancer patients undergoing cancer treatment (42%) were in the age group of 59 years and above, 57% were males, 57% were by Hindu religion, 84% were married, 42% had primary school level of

education and 61% of them were unemployed, 64% belonged to the nuclear family, 39% had their monthly income below Rs. 4,999/- per month, 63% were residing in the rural area, 29% had their first diagnosis

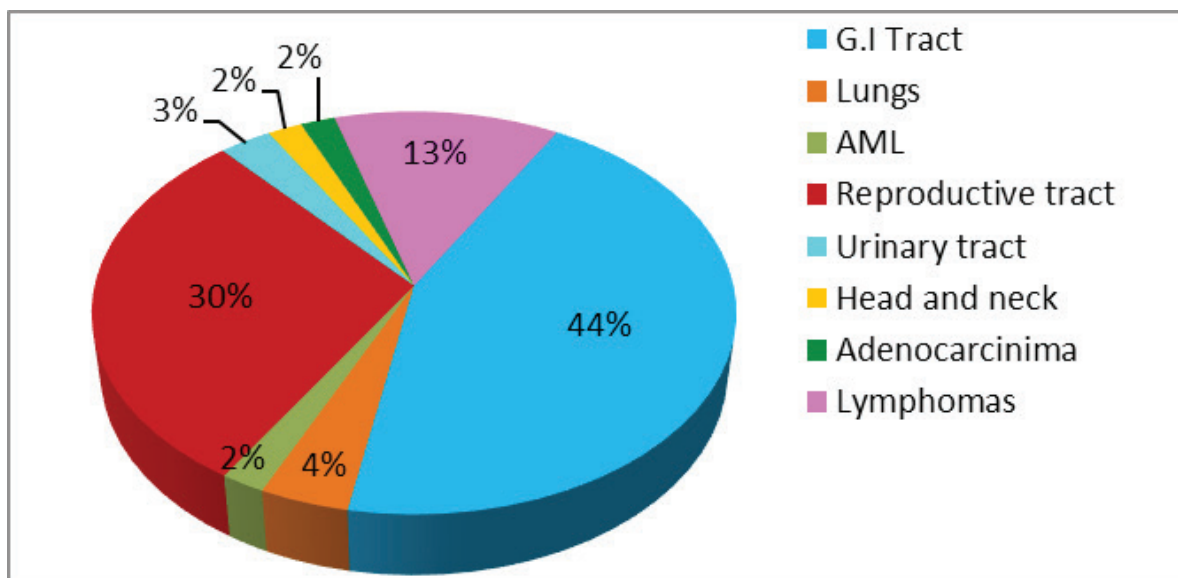
of cancer was in the range of 31 months and above, 73% did not follow any complimentary therapy with the cancer treatment and 91% did not practice any religious and cultural rituals with the cancer treatment

**Section 2: Findings related to characteristics of cancer treatment received by cancer patients in selected Therapy history**



**Fig 2. Distribution of cancer patients in terms of their month of diagnosis of cancer**

N=100



**Fig 3. Distribution of cancer patients in terms of their diagnosis of cancer site**

**Table 1 Distribution of cancer patient patients in terms of their characteristics of cancer treatment****N=100**

Sl.No.	Variables	(f)	(%)
1.	Complimentary therapies		
a.	Ayurveda treatment	7	7%
b.	Yoga	3	3%
c.	Unani	1	1%
d.	Sowa rigpa (tibetan medicine)	13	13%
e.	Homeopathy	3	3%
f.	No complimentary therapies	73	73%
2.	Religious and cultural rituals		
a.	Fasting	5	5%
b.	Complimentary dietary supplements ( honey, dates, olive oils) holy water	3	3%
c.	Meditation	1	1%
d.	No religious and cultural rituals	91	91%
3.	Types of chemotherapy		
a.	Antimetabolites	7	7%
b.	Alkylating agents	34	34%
c.	Antitumor	8	8%
d.	Alkaloids	16	16%
e.	Antidotes	2	2%
f.	Antimetabolites + anti tumor	3	3%
g.	Antimetabolites + alkylating agents + alkaloids+ antidotes	2	2%
h.	Alkylating agents + alkaloids	10	10%
i.	Antimetabolites + alkylating agents + alkaloids	3	3%
j.	Antimetabolite + alkylating agents	3	3%
k.	Antimetabolite + alkylating agents +antidotes	1	1%
l.	Alkaloids + antidotes + antimetabolites	3	3%
m.	Alkaloids + antitumor + alkylating agents	1	1%
n.	Antitumor +alkylating agents +antimetabolites	2	2%
o.	Antimetabolites + antidotes	1	1%
p.	Antitumor + alkylating agents	2	2%
q.	Alkylating agents + antidotes	2	2%

N=100

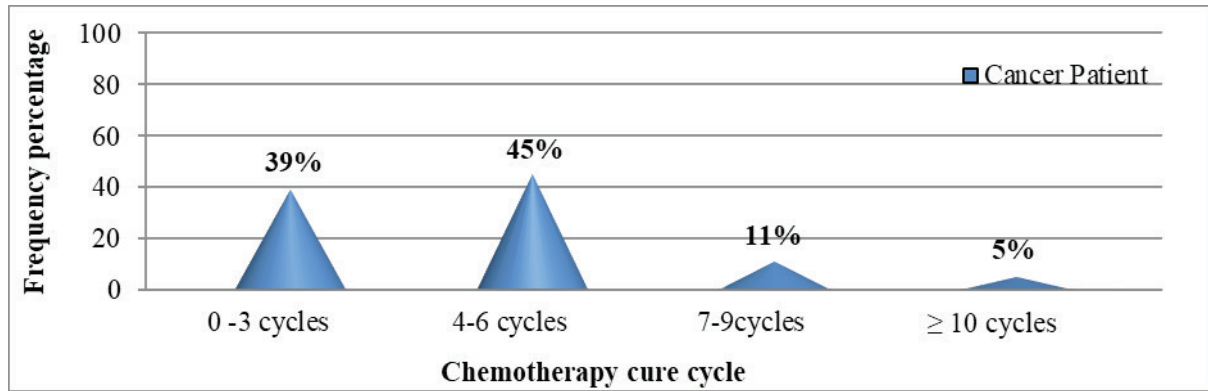


Fig 4. Distribution of cancer patients in terms of receiving chemotherapy cure cycles

Table 2. Assessment of Mean, Mean percentage and standard deviation for overall Quality of life score of cancer patients.

N=100

Domain	Mean	Mean %	Median	Standard deviation
Quality of life score	78.66	68.49%	78	16.438

The overall quality of life score shows that all the cancer patients had average quality of life due to the cancer and its treatment with the mean percentage of 68.49% as shown in table 2.

The result of the study shows that the cancer patients scored 69.28% in global health status which shows an average level of quality of life in this domain. The functional scale scores ranged with mean percentage score of 50.83% which interpreted

that the cancer patients undergoing cancer treatment has average level of difficulties in performing the daily functional activities. The symptom scale scored mean percentage of 63.73% which shows that the cancer patients have average level of symptom level during the period of cancer treatment. The financial difficulties shows 67.5% which indicates that the cancer patients undergoing cancer treatment had some level of difficulties with respect to the cost of cancer treatment.

Table 3: Domain wise overall mean assessment of quality of life by European Organization for Research and Treatment (EORTC) Questionnaire for cancer patient

N=100

Domain-2 Functional scales	Total Questions	Total Marks	Marks Obtained	Mean	Mean Percentage	Median	SD
Global Health Status	2	1400	890	8.9	63.57%	7	2.098
Physical functioning	5	2000	1,177	11.77	58.85%	9.5	3.3

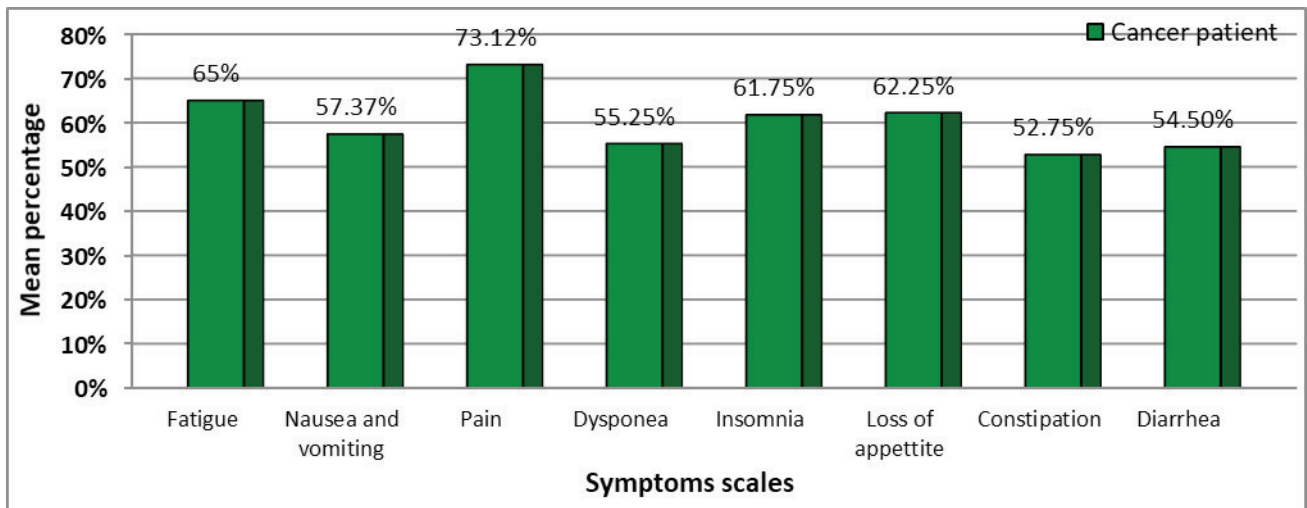
**Cont... Table 3: Domain wise overall mean assessment of quality of life by European Organization for Research and Treatment (EORTC) Questionnaire for cancer patient**

**N=100**

Role functioning	2	800	486	4.86	60.75%	3.5	2.1
Emotional functioning	4	1600	1086	10.86	67.87%	6.5	3.0
Cognitive functioning	2	800	437	4.37	54.62%	2.5	30.6

The above table shows that the Global Health Status consisted of two questions with the total marks of 1400 out of which the respondents scored 890 with the mean percent of 63.57%. In Physical functioning (PF) it consisted of total of 5 questions where the mean was found to be 11.2, mean percentage of 58.85%. The role functioning (RF) scale consisted of total of two questions in which the mean was found to be 4.86, mean percentage of 60.75%. The emotional functioning (EF) scale consisted of totally four questions where the mean score was 10.86, mean percent of 67.87% and the cognitive functional (CF) scale consisted of total number of 2 questions where the mean score were 4.37 with the mean percentage of 54.62% thus showing the average score in all the domain of the Quality of life questionnaire.

**N=100**



**Fig.5 Distribution of cancer patients in terms of their symptoms scales**

The findings shows that age, educational status and place of habitat of the cancer patient had its influence in global health status scale ( $P \leq .05$ ) whereas financial difficulty with the sex of the cancer patient ( $P \leq .05$ ). . It

was also found that there was a significant association between the marital status, education status and type of family with the symptom scale ( $P \leq .05$ ). It was also noted that there was significant association between

the sexes of the cancer patient with the financial difficulty ( $P \leq .05$ ). The study further depicted that there was significant association in terms of type of habitat with symptom scale ( $P \leq .05$ ) of European Organization for Research and Treatment of Cancer.

Significant association was found in the therapy history, Chemotherapy cure cycles and type of chemotherapy received with the Global Health Status Scale ( $P \leq .05$ ). Whereas significant association was found with diagnosis of the site with the Symptom Scale ( $P \leq .05$ ).

### **Discussion in relation to the quality of life among cancer patients**

The present study findings revealed that the majority of the cancer patients (48%) had good level and 20% had excellent level of Global Health Status score. Whereas the data also depicted that 46% of the participants had moderate and 9% had severe level scores for the symptom scales comprising of the fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation and diarrhoea scales. In the financial difficulty scale it was found that 58% of the participants faced moderate level and 9% faced severe level of financial difficulties for the cancer treatment.

The findings were consistent with the findings of the cross sectional study conducted by **Sunderam S, et al**,<sup>14</sup> at oncology clinic of Rajendra Institute of Medical Science (RIMS) to assess the quality of life among 113 cancer patients in relation to type of treatment received and result shows 54%, had average & 21.9% had below average quality of life. In contrast to the present study findings, **Davies N**<sup>15</sup> conducted a institutional based cross-sectional research on 250 breast cancer patients to assess the quality of life through Amharic version of European organization for research and treatment of cancer questionnaires and found that participants scored low quality of life

(Mean =52.5; SD = 26.0).

In the present study with respect to the Global Health Status the mean percentage was 57% (SD=3.12). This indicates that the respondents had average level of quality of life score. Similarly in the functional scale, the highest score is in emotional function scale that is 67.87% (SD=3.0). This means that the cancer patients undergoing cancer treatment were much worried about their disease condition and their treatment. Similarly in the symptom scale, the mean percentage for fatigue was 65% (SD= 2.3), for pain it was 73.12% (SD=0.2), among symptom scales, pain and fatigue is the most frequent symptoms, which indicates high level of problems.

The findings were consistent with the study conducted by **Radha A Pandey, et al**,<sup>16</sup> on quality of life of patients undergoing cancer treatment in B.P. Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal, among 245 cancer patients and found that the quality of life of cancer patients is better. Regarding symptoms scale the transform mean and SD score is low that is 16.14 (SD= 13.19) which also indicates better quality of life of cancer patient or low symptomatic. Among the symptom scale loss of appetite is the most frequent symptoms, which indicates that high level of problems with loss of appetite.

In the present study it was found that Global Health Score was significantly associated with the therapy history, number of chemotherapy cure cycles received, diagnosis of the site of cancer and type of chemotherapy received by the cancer patients. These findings was consistent with the research conducted by **Singh H, Kaur K, Banipal RPS, Singh S, Bala R**<sup>17</sup> to assess the Quality of life in cancer patients undergoing chemotherapy in a tertiary care center in Malwa region of Punjab and found that the Global Health Score significantly improved among patients

undergoing more than three cycles of chemotherapy as compared to one, indicating that the patient's overall health improved.

The findings was consistent with the findings based on study conducted by **Thalyta C Mansano-Schlosser, Maria F Ceolima**<sup>14</sup>, to evaluate the quality of life in cancer patients undergoing chemotherapy among 80 samples and found that 27(34%) patients rated it was "very good" or "good", 35(44%) indicated that it was "neither good nor bad" and 18 (22%) said it was "very bad" or "poor" in the self-rated Health. Regarding quality of life, it was found that the Social and physical domains were the most affected.

The health care provider need to focus on addressing side effects of the therapy, psychosocial and economic support to minimize therapy side effects and symptoms which in turn will help improve quality of life of cancer patients. Quality of life assessments should be included in patient treatment protocols addressing the functional and symptom scales which will help in improving the QoL among cancer patients.

### **Conclusion & Recommendation**

The study concluded that type and site of cancer has a significant impact on the Quality of Life of the patients. The most commonly used treatment method in this study was chemotherapy (89%) which is more troublesome for patients due to its side effects especially in the beginning of treatment as patients take much time in getting adjusted with the treatment and its side effects. The major drawbacks of this study was the small number of patients and inability to ascertain changes over a long period of time, especially considering long term late effects due to sequel of treatment or disease relapse. Thus selection of two settings and large samples, Other research designs such as cross sectional research design , comparative study on the basis of type of cancer treatment received in terms of gender and

duration of cancer diagnosis and experimental study focusing on reduction of pain and discomfort due to cancer treatment was recommended.

**Acknowledgment:** The researcher thanks all the participants of the study for their kind cooperation.

**Ethical Clearance-** Ethical permission was sought from the Institutional Review Committee of Sikkim Manipal University. Written consent was obtained from the respondent prior to the interview.

### **Declarations**

- **Funding:** No funding sources
- **Conflict of interest:** None declared

### **References**

1. Irizarry P, Newby A, Clapp R. Lifestyle related factors and environmental agents causing cancer an overview. Retrieved from: URL: <http://www.Doi:10.1016/j.biopha.2007.10.006>. PMID 18055160.
2. Cancer fact sheet. Retrieved from [www.ncrpindia.org](http://www.ncrpindia.org)
3. Cancer burden in India. Retrieved from [www.canceratlasindia.org](http://www.canceratlasindia.org)
4. [http://www.icmr.nic.in/ncrp/pbcr\\_2012-14/](http://www.icmr.nic.in/ncrp/pbcr_2012-14/) Retrieved from :Sikkim\_State\_Printed.pdf
5. Hofman M, Ranson L. The most common side effects of cancer drugs: University of California USA. 2002 December: Available from: URL:<http://www.cancerhelp.org.uk/about-cancer>
6. Malathi G Nayak, Anice George, MS Vidyasagar, Stanley Mathew, SudhakarNayak, Baby S Nayak, YN Shashidhara, ,Asha Kamath. Quality of Life among Cancer Patients. *Indian Journal of Palliative Care*. 2017; 23(4): 445–450.
7. Basu A, Basu A. Changes in quality of life among

- Indian breast cancer patients during adjuvant treatment: A single centre experience. *Journal of Evolution Medicine in Dental Science*. 2016; 5(82):6101-6107.
8. Rajani Mohan Indian Talent Global Content. 2010 November. Retrieved from: URL: <http://www.chillibreeze.com/articles-various/cancer-in-India.asp>
  9. Heydarnejad MS, Hassanpour DA, Solati DK .Factors affecting quality of life in cancer patients undergoing chemotherapy. *African Health Sciences*. 2011; 11(2 ):266-70.
  10. Ferlay J, Steliarova FE, Lortet TJ, Rosso S, Coebergh JW, Comber H . Cancer incidence and mortality patterns in Europe: Estimates for 40 countries in 2012. *European Journal of Cancer* 2013; 49:1374-403.
  11. Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: Five year observational cohort study. *British Medical Journal*. 2005; 330:702-5.
  12. World Health Organization. Research on menopause. Technical Report Series. 1981; 671:1-120.
  13. Bhanja A, D'Souza DSJ, Roy C, Poddar RN .Assessment of Quality of life in oral cancer patients following pectoralis major myocutaneous flap reconstruction. *International Journal of Contemporary Medical Research*. May 2016; Vol 3( 5 ):50.43.
  14. Schlosser TCM, Ceolim MF, Quality of life of cancer patients during the chemotherapy period. *Texto contexto - enferm, Florianópolis* .2012;21(3):600-607.
  15. Davies N. Measuring health-related quality of life in cancer patients. *Nursing Standard*. 2009;23(30):42-9.
  16. Pandey RA, Dhungana GP, Twi JT, Byanju S, Khawas B. Quality of life of patients undergoing cancer treatment in B. P. Koirala Memorial Cancer Hospital, Bharatpur, Chitwan, Nepal. 26 March 2018
  17. Aaronson NK, Ahmedzai S. The European Organization for Research and Treatment of Cancer QoL – C30: A Quality – of – Life Instrument for Use in International Clinical Trials in Oncology. *Journal of the National Cancer Institute*.1993; 85(5).

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