

A Cross-Sectional Study on Pain and Quality of Life in Patients Undergoing Chemotherapy

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Abstract

Original Research Article

Chemotherapy leads to diverse symptoms and conditions affecting the quality of life (QoL). This study examines Quality of life and pain in chemotherapy patients. Poor pain management significantly impacts patients, hindering therapy tolerance and overall well-being. A cross-sectional observational study was conducted on 327 patients undergoing chemotherapy. Participants were enrolled according to inclusion and exclusion criteria. The data were collected in a self-designed data collection form, EORTC QLQ C-30 Version 3.0 standard questionnaire was used for the assessment of quality of life (QOL) and numerical pain rating scale was used to assess the severity of pain. In this study females (62.4 %) participants were more than males (37.6%). The majority of participants were aged 51–60 years. In the QOL the Functional Scale indicates high Cognitive Functioning (good QOL=84.4%, poor QOL=15.6%), but lower scores for Social (good QOL=63.3%, poor QOL=36.7%) and Physical Functioning (good QOL=63.3%, poor QOL=36.7%). On the Symptoms Scale, significant issues included Fatigue (good QOL=41.6%, poor QOL=58.4%) and Pain (good QOL=38.8%, poor QOL=61.2%), with Nausea/Vomiting affecting (good QOL= 68.5%, poor QOL=31.5%). Females (71%) reported a good quality of life (QOL) compared to males. Majority of participants did not experience pain. The main chemotherapy drugs used was carboplatin and dexamethasone was extensively used for pain management. The study highlights the role of early detection, medication adherence, and lifestyle modification in cancer management. Enhancing HRQOL in chemotherapy patients requires joint efforts from healthcare providers, patients, and support systems.

Keywords: Numerical rating scale, oncology, EORTC QLQ 30, cancer patients.

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INTRODUCTION

Cancer is a chronic disease in which cells grow uncontrollably beyond their normal boundaries and invade or spread to other organs, a process known as metastasis. Neoplasm and malignant tumor are other common names for cancer. [1,2] Cancer is categorized according to the different parts of the body, carcinomas Originate in epithelial cells lining and organs such as lung, prostate, colon, and breast cancers. Sarcomas develop in connective tissues such as muscle, cartilage, fat, and bone. Leukemia arises from abnormal blood formation in the bone marrow, while lymphomas begin in immune cells. Multiple myeloma attacks plasma cells, and melanomas emerge from pigment-producing melanocytes. Others., This category includes central nervous system tumors, reproductive system cancers (prostate, breast, cervical), along with lung, colorectal,

and pediatric brain tumors. [3] In 2022, India saw an estimated 14,61,427 cancer cases, with a crude rate of 100.4 per 100,000, and a 12.8% increase in cases expected by 2025. Lung and breast cancers were most common among males and females, respectively, while lymphoid leukemia was prevalent in children. Globally, there were nearly 20 million new cancer cases in 2022, with one in five people expected to develop cancer in their lifetime. In 2023, the U.S. is projected to have 1,958,310 new cases and 609,820 cancer deaths. [4] Cancer treatment involves both traditional and advanced modalities. Traditional treatments include surgery, radiotherapy, and chemotherapy, which can effectively manage tumors but may also harm healthy cells, causing side effects like nausea, fatigue, and drug resistance. Advanced therapies such as stem cell therapy, targeted drug therapy, and gene therapy offer more specific approaches, targeting cancer cells while minimizing

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damage to healthy tissue. Chemotherapy drugs, including alkylating agents, platinum complexes, and anti-metabolites, work by interfering with DNA replication and cell division. Targeted drugs, like tyrosine kinase inhibitors and monoclonal antibodies, aim to block specific molecular pathways. Hormonal therapies and chemotherapy can also cause significant side effects, affecting various bodily systems like the gastrointestinal, nervous, and immune systems. [5] Quality of Life (QOL) in Cancer Patients refers to the overall well-being of individuals, considering physical, psychological, and social aspects, which are impacted by illness, treatment, and lifestyle. HRQOL (Health-Related Quality of Life) encompasses physical functioning (ability to perform daily activities), physiological functioning (psychological distress and cognitive abilities), and social functioning (relationships and social interactions). Chronic illnesses like cancer can significantly impair a person's QOL by limiting functional abilities, increasing healthcare costs, and leading to emotional distress. Effective QOL assessments help healthcare providers understand the broader impact of cancer and tailor personalized treatment plans, considering factors like depression, anxiety, and social isolation. To evaluate QOL in cancer patients, several questionnaires are used, such as the EORTC QLQ-C30, FACT-G, and disease-specific modules for various cancers. [6] Pain Assessment and Management in Cancer Pain in cancer patients is assessed using scales like the Visual Analogue Scale (VAS) and Numeric Rating Scale (NRS), both of which are reliable for measuring pain intensity. The NRS, which ranges from 0 (no pain) to 10 (worst pain imaginable), is often preferred for its simplicity and practicality. [7] For pain management, opioids are key for moderate to severe pain, and adjuvant therapies such as corticosteroids, antidepressants, anticonvulsants, and bisphosphonates may be used in combination with opioids. These treatments are essential to ensure effective relief of both nociceptive and neuropathic pain in cancer patients. [8] This study aims to evaluate the pain and quality of life in chemotherapy patients. The primary objective is to assess their overall quality of life, while the secondary objective focuses on pain severity and management. The findings will help improve patient care and treatment outcomes.

MATERIAL & METHODOLOGY

Study Protocol:

The cross-sectional observational study was carried out for a period of 6 months in the department of Oncology, At tertiary care hospital, Bengaluru. sample size was 327. This study included patients of either sex who were above 18 years of age and undergoing chemotherapy at the oncology department. Patients were excluded from the study if they were unwilling to provide consent, were below 18 years of age, were pregnant or lactating, or were receiving their first cycle of chemotherapy. The data collected by using a combination of structured tools. A self-designed data

collection form was used to gather detailed information on patient demographics, occupation, risk factors, socioeconomic status, past medical and medication history, co-morbidity, type of cancer, medications prescribed during chemotherapy, and discharge medications. Additionally, the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30, version 3.0) was used to assess the quality of life in patients undergoing chemotherapy. This questionnaire consists of 30 items covering global health status, functional scales—including physical, role, emotional, cognitive, and social functioning—and symptom scales such as fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties. Responses are rated from 1 to 4, with 1 indicating "not at all" and 4 indicating "very much," except for questions 29 and 30, which are scored from 1 to 7, where 1 represents "very poor" and 7 represents "excellent." Pain severity was assessed using the Standard Numerical Pain Rating Scale, which rates pain from 0 to 10, where 0 indicates no pain, 1–4 indicates mild pain, 5–6 indicates moderate pain, 7–9 indicates severe pain, and 10 represents the worst possible pain.

Study Procedure:

After obtaining approval from the Institutional Ethics Committee, the study was initiated. Subjects were identified based on inclusion and exclusion criteria. The purpose of the study was explained, and informed consent was obtained prior to data collection. Information was recorded, and quality of life and pain severity were assessed using the EORTC QLQ-C30 questionnaire and the Standard Numerical Pain Rating Scale. Pain management was evaluated based on drug utilization for chemotherapy-induced pain.

Statistical Analysis:

All recorded data were entered in Microsoft excel and statistical analysis was performed. Comparison of QOL with gender and cancer type was assessed by using Chi square test, comparison of QOL scores across the gender was compared using independent samples test. Comparison of QOL scores with family history was assessed by using Student's t-test. Comparison of QOL scores on participants who underwent surgery was done using students t test. Comparison of QOL scores with occurrence of comorbidity was performed using independent t test. Comparison between numerical pain rating scale and gender is assessed using Chi square test. Comparison of pain rating scale in people who underwent surgery and those who did not underwent surgery was assessed with Mann-Whitney U and also Wilcoxon W test. Comparison of QOL and pain rating scale was assessed using Chi square test.

RESULTS

There were 327 participants meeting the inclusion and exclusion criteria. Among them females constituted the majority 204(62.4%), while males

accounted for 123(37.6%). This study revealed majority of patients i.e. (n=93) belonged to age range of 51-60

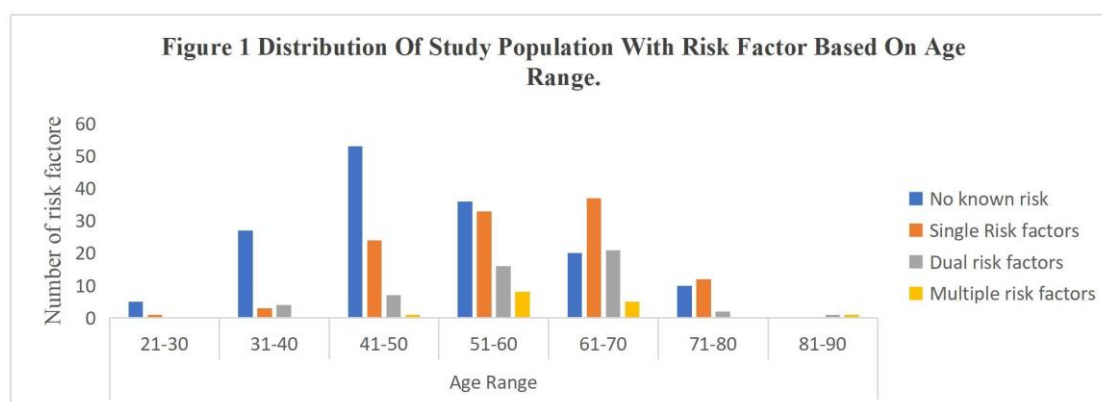
years and the least number of patients i.e.(n=2) belonged to the 81-90 Age Range as shown in table 1.

Table 1. Distribution of Study Populations Based on Age Range

Age Range	Gender				Total	
	Female		Male			
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
21-30	3	0.92%	3	0.92%	6	1.8%
31-40	24	7.34%	10	3.06%	34	10.45%
41-50	71	21.71%	14	4.28%	85	26.05%
51-60	57	17.43%	36	11.01%	93	28.45%
61-70	40	12.23%	43	13.15%	83	25.4%
71-80	9	2.75%	15	4.59%	24	7.3%
81-90	0	0	2	0.61%	2	0.6%
TOTAL	204	62.4	123	37.6	327	100

Patients were categorized based on risk factor with age range the study shown that majority of population did not present with any risk factors particularly in the age range of 41-50 years, single and

dual risk factor were most predominant at the age range of 61-70 years, followed by 51-60 years. as shown in Figure 1.



Out of 327 patients, 73 females were having age as single risk factor and 10 male subjects presented with single risk factor where smoking was major risk factor. Among these 39 male patients were habituated for both smoking and alcohol consumption considered as dual

risk factors. In our study population people presenting without any co-morbidities were highest (n=172). A total of 165 had co-morbidities among these more patients were encountered having single co morbidity (n=104). shown in table.2

Table 2: Distribution of the Study Population Based on Frequency of Co-morbidities

Co-morbidities	Male		Female		Total	
	Frequency	%	Frequency	%	Frequency	%
No co-morbidities	69	21.10%	103	31.50%	172	52.60%
Single co morbidity	37	11.31%	67	20.49%	104	31.80%
Dual co-morbidities	17	5.20%	31	9.48%	48	14.68%
Multiple comorbidities	0	0	3	0.92%	3	0.92%
Total	123	37.61	204	62.39	327	100%

only 26 (8%) reported a having family history of cancer while the remaining 301 (92%) had no such history. Among the 327 participants, the largest proportion was engaged in miscellaneous occupations (38.8%). This was followed by individuals working in industry/manufacturing (15.6%), agriculture and food production (13.1%), public services/protection (11.3%),

and business/finance (11.1%). Smaller proportions were noted in hospitality and food services (3.7%), education and childcare (3.4%), skilled labor/trades (1.8%), and health and safety (1.2%). in our study population Carcinoma type of cancer shown the highest frequency, accounting for 72.78% of cases, with 42.51% in females and 30.28% in males. Breast cancer in females (29.36%)

and colon cancer in males (12.84%) is prominent. Gynecologic cancer represents 15.60% of cases,

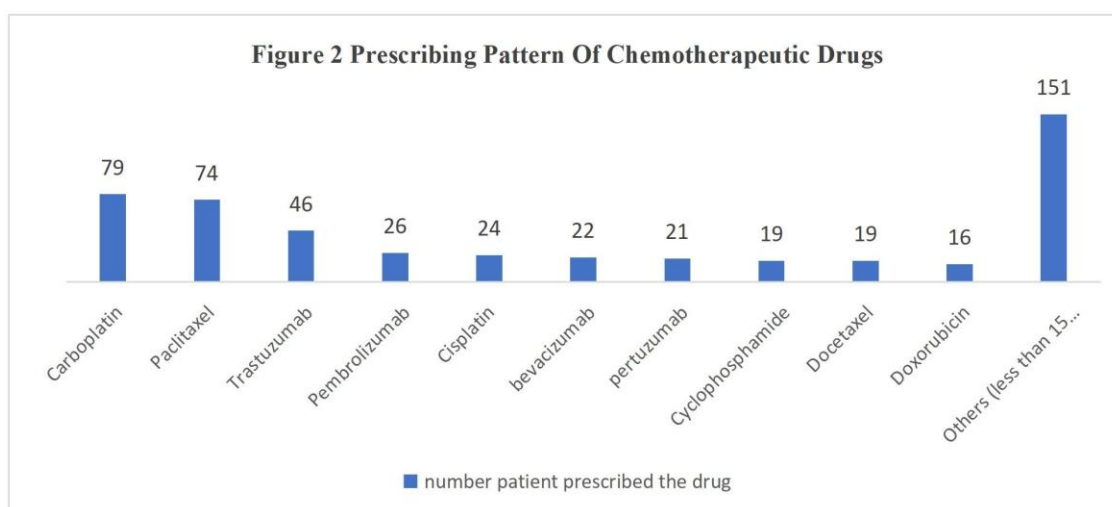
predominantly cervical cancer in females (9.17%) shown in table.3

Table 3: Distribution Of Study Population Based on Type of Cancer

Types of Cancer	Gender				Frequency	Percentage (%)
	male	%	female	%		
LYMPHOMA	8	2.45%	4	1.22%	12	3.67%
B cell follicular lymphoma	1	0.31%	0	0	1	0.31%
B cell lymphoma	6	1.83%	3	0.92%	9	2.75%
Hodgkin lymphoma	1	0.31%	1	0.31%	2	0.61%
CARCINOMA	99	30.28%	139	42.51%	238	72.78%
Lung cancer	16	4.89%	8	2.45%	24	7.34%
Breast cancer	0	0	96	29.36%	96	29.36%
Colon cancer	42	12.84%	10	3.06%	52	15.90%
Head and neck cancer	22	6.73%	10	3.06%	32	9.79%
Liver, pancreas, gall bladder cancer	0	0	11	3.36%	11	3.36%
Renal cell carcinoma	9	2.75%	3	0.92%	12	3.67%
Peripheral t cell carcinoma	1	0.31%	0	0	1	0.31%
Squamous cell carcinoma	1	0.31%	1	0.31%	2	0.61%
B cell carcinoma	1	0.31%	0	0	1	0.31%
Male reproductive cancer	7	2.14%	0	0	7	2.14%
MYELOMA	8	2.45%	6	1.83%	14	4.28%
Blood cancer	1	0.31%	0	0	1	0.31%
Multiple myeloma	7	2.14%	6	1.83%	13	3.97%
GYNECOLOGIC CANCER	0	0	51	15.60%	51	15.60%
Cervix cancer	0	0	30	9.17%	30	9.17%
Ovarian cancer	0	0	19	5.81%	19	5.81%
Uterine cancer	0	0	2	0.61%	2	0.61%
MIXED TYPE CANCER	9	2.75%	3	0.92%	12	3.67%
Sarcoma, leukemia	6	1.83%	2	0.61%	8	2.45%
other	3	0.92%	1	0.31%	4	1.22%

Carcinoma is the most frequent cancer type across age ranges, peaking at 74 subjects in 51-60 Age Range. Gynecologic cancer is also notable, particularly with 13 subjects in 61-70 Age Range. This marks a remarkable finding that 51-60 and 61-70 age range are

critical for cancer diagnoses, especially for carcinoma and gynecologic cancer. In the study population the Prescribing pattern of chemotherapeutic drugs which were prescribed for various type of cancer shown in Figure.2



Assessment of quality of life using EORTC-QLQ C30 Version 3. The overall quality-of-life assessment revealed that patients had a moderate global

health status, with a mean score of 62.51. Among the functional aspects, cognitive functioning was the highest at 89.04, indicating that most patients were able to

maintain their memory and thinking abilities. This was followed by emotional functioning (78.13), role functioning (77.47), and physical functioning (74.90), reflecting fairly good abilities to manage emotions, daily roles, and physical activities. However, social functioning was lower at 68.85, suggesting that social interactions and relationships were more affected. On the symptoms side, the most common problems reported were fatigue (36.66), pain (35.16), and insomnia (31.90),

showing that tiredness, discomfort, and sleep disturbances were significant concerns for many patients. Other notable issues included appetite loss (30.68) and nausea and vomiting (20.13), which also affected daily life. Less frequently reported problems were constipation (12.64), diarrhea (13.96), dyspnea (9.27), and financial difficulties (11.51), indicating that these factors were present but not as prominent as shown in table.4

Table 4: Assessment Of Quality of Life Using EORTC- QLQ C30 Version 3.0

Scale	Mean	(Sd)	Good QOL %	Poor QOL %
GLOBAL HEALTH STATUS				
Global health status / QOL	62.5127	20.68067	62.1	37.9
FUNCTIONAL SCALE				
Physical functioning	74.9032	24.22027	63.3	36.7
Role Functioning	77.4720	22.20306	49.8	50.2
Emotional functioning	78.1346	26.76432	67.6	32.4
Cognitive functioning	89.0418	16.19052	84.4	15.6
Social functioning	68.8583	20.91437	63.3	36.7
SYMPTOMS SCALE				
fatigue	36.6633	28.20483	41.6	58.4
Nausea and vomiting	20.1325	30.41773	68.5	31.5
pain	35.1682	27.50777	38.8	61.2
dyspnea	9.2762	23.47429	84.1	15.9
insomnia	31.9062	39.99832	54.4	45.6
Appetite loss	30.6830	38.01180	53.2	46.8
Constipation	12.6402	28.65888	80.7	19.3
Diarrhea	13.9653	28.93252	77.1	22.9
Financial difficulties	11.5189	22.75736	75.2	24.8

The analysis revealed a significant association between gender and quality of life ($p = 0.012$). and p value >0.05 since no significant associations were

observed with age range ($p = 0.655$), number of comorbidities ($p = 0.090$), or type of cancer ($p = 0.661$) as shown in table.5

Table 5: Comparison of QOL with Various Factors

Factors	Statistical test	P-Value	Remarks
Gender	Chi Square	0.012	Significant association
Age range	Pearson Chi-Square	0.655	No Significant association
Number Of Comorbidities	Pearson Chi-Square	0.090	No Significant association
Type Of Cancer	Pearson Chi-Square	0.661	No Significant association

Distribution of study population-based pain rating Among the 327 participants, majority of patients fall in the scale of either no pain or mild pain. Both being

distributed equally ($n=102$). Followed by moderate pain experienced by 51 patients as shown in table 6.

Table 6: Distribution of Patients Based on Pain Rating

Pain Rating Scale	Frequency	Percentage (%)
No Pain	102	31%
Mild Pain	102	31%
Moderate Pain	51	16%
Severe Pain	50	15%
Worst Pain	22	7%

The comparison of pain with various factors showed no significant association with gender ($p = 0.696$) and no significant association with history of surgery ($p = 0.661$), comparison of pain with age range,

number of comorbidities, type of cancer where chi square test could not be performed because of presence of zero variables. Distribution of pain medication during chemotherapy the frequency distribution shown that

corticosteroids are the most commonly used pain medication (203), followed by bisphosphonates (54). A notable number of patients reported using no pain

medication (83), while non-opioids were the least used (15) shown in Table.7

Table 7: Distribution Of Pain Medication During Chemotherapy

Pain Medication	Frequency	Percentage
Corticosteroids	203	57.18%
Bisphosphonates	54	15.21%
No pain medication	83	23.38%
Non opioids	15	4.23%
Total	355	100.0

Comparison of study population based on quality of life and pain as shown in table 8

Table 8: Comparison of study population Based on Quality of Life and pain

QOL		Pain rating scale				
		No pain	Mild pain	Moderate pain	Severe pain	Worst pain
Good QOL	Frequency	55	37	17	13	2
	%	44.4%	29.8%	13.7%	10.5%	1.6%
Poor QOL	Frequency	47	65	34	37	20
	%	23.2%	32.0%	16.7%	18.2%	9.9%

The "Good QOL" group, 44.4% reported no pain, while only 1.6% experienced the worst pain. In contrast, the "Poor QOL" group had a higher percentage of individuals reporting mild (32.0%) to severe (18.2%) pain, with 9.9% experiencing the worst pain. This suggests a correlation between lower QOL and higher pain levels. The Chi Square test results indicate a significant association between Quality of Life (QOL) and pain levels, as the p-values for both the Pearson Chi-Square and Likelihood Ratio tests are less than 0.001.

DISCUSSION

Cancer is a chronic disease marked by uncontrolled cell growth and spread (metastasis). In India, 11% of people are likely to develop cancer. Lung cancer is most common in males, breast cancer in females, and lymphoid leukemia in 29.2% of boys and 24.2% of girls aged 0–14 years [4]. A cross-sectional study at tertiary care hospital Bengaluru, evaluated pain and quality of life in 327 chemotherapy patients. After obtaining consent, participants were assessed using the EORTC QLQ-C30 for quality of life and the Numerical Pain Scale for pain severity, based on specific inclusion and exclusion criteria. In our study of 327 participants, 62.4% were females and 37.6% males. A similar study in Jalingo, Nigeria, showed 17.4% males and 82.6% females among 218 participants. This may reflect women's proactive health-seeking behavior and focus on female-specific condition [9]. In the 40-64 age group, lung (11%), mouth (10.9%), and tongue (7.3%) cancers were most common in males, while breast (33%), cervix (12.3%), and ovary (6.5%) cancers were leading in females. This age group had a high incidence in both gender ¹⁰in our study, most participants were aged 51-60 years (28.4%), with a high incidence in the 41-60 age group due to factors like aging, lifestyle, and environmental exposures. A study conducted in Ethiopia, where the least number of participants belong to the age group of ≥ 60 (11.9 %) [11] which is in contrast to our

study it may be due to late diagnosis. Participants Comorbidities increased with age. Majority had no comorbidities (n=172), followed by single (n=104) and multiple (n=3) comorbidities, potentially influencing cancer diagnosis and patient prognosis. A similar study conducted in Brazil, single comorbidity (n=79) was more common in younger patients, while multiple comorbidities (n=25) were higher in older age groups [12]. Hypertension (n=55) was most common; hypertension with diabetes (n=10) was the leading dual. Breast cancer showed highest dual (n=10) and multiple (n=8) comorbidities this due to population demographics, prevalence of risk factors such as hypertension and diabetes, and timing of cancer diagnosis. In our study, most participants were from industry/manufacturing (n=51) and agriculture/food production (n=43), sectors linked to carcinogen exposure. These occupations increase cancer risk, especially when combined with smoking or alcohol. In contrast, an Ethiopian study reported more housewives (n=117) and farmers (n=85) [11]. Our study highlights sex-specific cancer patterns. Carcinoma was most common (72.78%), with higher prevalence in females (42.51%). Breast cancer (n=96, 29.36%) in females and colon cancer (n=52, 12.84%) in males were prominent. In a similar study conducted in Ethiopia, Breast cancer was found to be the most prominent accounting for 25.5% and the lowest was prostate cancer, 4.8 % [11]. In genetic and molecular studies, susceptibility to disease varies across the gender here are many types of cancer treatment. The types of treatment that a patient will have will depend on the type of cancer and how advanced it is. Some people with cancer will be treated with monotherapy, but most people have a combination of treatments, such as surgery with chemotherapy and/or radiation therapy. Newer advancements also have emerged such as immunotherapy, targeted therapy, or hormone therapy. Among the chemotherapy drugs which were prescribed for various type of cancer, most

extensively prescribed drug was carboplatin (n= 79), followed by paclitaxel (n=74). Least prescribed drugs were rituximab, nivolumab, bortezomib, gemcitabine, irinotecan, oxaliplatin, 5-fluoro uracil, vincristine, pemetrexed, ramucirumab, tegafur, bendaustine, denosumab, epirubicin, ifofosfamide, atezolizumab, capecitabine, cetuximab. In a study conducted at Hyderabad and Karnataka region it was found that Cisplatin was the most commonly used cytotoxic drug followed by carboplatin, and antimetabolites [13]. The European Organization for Research and Treatment of Cancer core quality of life questionnaire, the EORTC QLQ-C30, is a cancer-specific quality of life instrument applicable to a broad range of cancer patients [14]. In our study, on assessing the Quality of Life using the EORTC-QOL version 3.0, the Functional Scale shows high scores in Cognitive Functioning (89.04) while Social Functioning (68.86) and Physical Functioning (74.90) are lower. On the Symptoms Scale, Fatigue (36.66) and Pain (35.17) are notable, with Nausea/Vomiting (20.13) affecting 31.5% of participants and Dyspnea being relatively low (9.28%). In another study conducted in Ethiopia the most affected functional scale was emotional functioning, with 189 (61%) participants scored poor QoL, whereas the cognitive functioning state was the least affected functional scale with majority 238 (76.8%) of participants scored good QoL. From symptoms, appetite loss was the most affected, 239 (77.1%), of participant's scored Poor QoL [11]. While performing analysis on the study we tried to compare quality of life with gender, age range, family history, history of surgery, number of co-morbidities, cancer type. Chi square test, t-test and individual sample test were the tools used to analyses the presence or absence of any association. On comparing the quality of life of the participants with gender and it was found out that A higher percentage of females (71%) reported a good QOL compared to 29% of males. For poor QOL, 57.1% were females, while males accounted for 42.9%. The Chi-square test indicates a significant association between quality of life (QOL) and gender, as the p value is less than 0.05(0.012). The higher number of females reporting both good and poor quality of life (QOL) could be because women are generally more active in seeking healthcare and more open about their emotions. They often have stronger social support, which can help improve their QOL, but they also face multiple responsibilities, like care giving, which can sometimes cause stress. Men are often less likely to seek medical help or discuss their health issues, which can lead to untreated conditions affecting their well-being. Additionally, men may face high levels of stress from work and societal expectations but may not always have strong emotional or social support systems to cope effectively. Cultural norms may also discourage men from expressing emotional or psychological struggles, which can negatively impact their overall QOL. These factors together contribute to poorer QOL outcomes in men. Participants with poor quality of life (QOL) are more common in older age ranges, particularly between

51 and 70 years, followed by those aged 51–60 and 61–70, respectively. There is a clear increase in poor QOL from younger to older groups, with only 2.5% in the 21–30 age range compared to 0.5% in the 81–90 range. Aging often brings health problems such as chronic illnesses, physical limitations, and reduced independence. Older adults may also experience greater emotional stress from life changes like retirement or loss of loved ones, as well as reduced access to healthcare and social support, leading to declines in physical and mental well-being. Individuals with a family history of cancer (N=26) had a higher mean global health status score (69.23) than those without (N=301; mean = 61.93). An independent samples test showed this difference in quality of life to be statistically significant ($p < 0.05$). Patients with poor quality of life (QOL) are most prevalent among those with a single co-morbidity (n=62; 30.5%), followed by those with dual co-morbidities (n=22; 11.3%). A chi-square test showed no significant association between QOL and number of co-morbidities ($p > 0.05$). In our study comparing quality of life (QOL) scores with surgery history, participants who had one surgery (N=117) had a mean global health status score of 63.53, while those with two surgeries (N=210) had a mean score of 61.94. An independent samples test indicated no significant difference between the groups, with a two-sided p-value of 0.506 assuming equal variances. Although the mean score for two surgeries is slightly lower, the difference is small and not statistically significant. These results suggest that undergoing one versus two surgeries does not meaningfully impact global health status or overall QOL. In our study comparing cancer type with quality of life (QOL), patients with poor QOL were most prevalent in carcinoma (148 cases), followed by gynecological cancers (33 cases). Myeloma and mixed-type cancers had 9 and 8 cases of poor QOL, respectively, while lymphoma had the fewest at 5 cases. Chi-square tests showed no significant association between cancer type and QOL ($p = 0.661$ and $p = 0.675$), indicating that observed differences are likely due to chance. This lack of significant association suggests that QOL is influenced by factors beyond cancer type—such as individual coping mechanisms, access to healthcare, treatment options, and overall health—rather than by the malignancy alone. Pain in cancer may result from tumor pressure on nerves or from treatments like surgery and bone marrow aspiration, as well as side effects such as mouth sores, neuropathy, or skin reactions. Pain was assessed on a 0–10 numeric scale (0 = no pain, 10 = worst pain). Among 327 participants, most reported no pain or mild pain (n=102 each), with worst pain least common (n=22). Chi-square tests showed no overall gender difference in pain ($p > 0.05$), though severe and worst pain occurred more in females, possibly due to hormonal sensitivity and sociocultural factors. Pain by age ranged: 21–30 years mild/moderate; 31–40 mild; 41–50 no pain; 51–60 mild; 61–70 no/mild; 71–80 no pain; 81–90 mild. Among 172 without comorbidities, 58 had mild pain and 51 had no pain. By cancer type, carcinoma patients

reported the most pain (30.38% no pain; 17.30% severe), gynecological cancers had 7.34% mild and 3.06% no pain; lymphoma had low pain (1.83% mild; 0.92% none); mixed cancers showed 2.45% no pain, 0.31% severe; myeloma mostly no pain (2.75%). Chi-square couldn't analyze some comparisons due to zero counts. Carcinomas cause more pain by invading tissues, compressing nerves, metastasizing to bone, and through inflammation and treatments. A Mann-Whitney U test comparing pain by surgery history showed no significant difference ($p = 0.661$). On comparing pain with QoL, it was found out that in the "Good QOL" group, 44.4% reported no pain, while only 1.6% experienced the worst pain. In contrast, the "Poor QOL" group had a higher percentage of individuals reporting mild (32.0%) to severe (18.2%) pain, with 9.9% experiencing the worst pain. This suggests a correlation between lower QOL and higher pain levels. The Chi-Square test results indicate a significant association between Quality of Life (QOL) and pain levels, as the p -values for both the Pearson Chi-Square and Likelihood Ratio tests are less than 0.001. Pain affects daily life and emotional well-being, leading to a lower quality of life (QOL). People with more pain, especially severe pain, often have poorer QOL because pain limits their activities and causes distress. In contrast, those with less or no pain report better QOL. Patients with similar cancer types may experience different intensities of pain, may respond to the same analgesic in different ways, and may exhibit varying sensitivities to the adverse effects for many of the drugs. The frequency distribution shows that corticosteroids are the most commonly used adjuvant medication to reduce the inflammation and pain (203), followed by bisphosphonates (54). In our study, dexamethasone was the major corticosteroid administered to the participants, but it was not intended for pain but instead it was used as an adjuvant therapy to reduce nausea and vomiting sensation. This study has many confounding barriers and bias which might have affected the interpretation of the results. By increasing the duration and conducting the study within a larger population, it can yield a proper validation on the results interpreted.

CONCLUSION

This study provides a comprehensive understanding of the demographic profile, risk factors, comorbidities, cancer types, treatment patterns, and quality of life among cancer patients attending the oncology daycare at Tertiary care hospital, Bengaluru. The findings highlight several key aspects that are crucial for improving cancer care and patient outcomes.

The predominance of carcinoma, particularly breast cancer among females and colorectal cancer among males, reflects the importance of gender-specific awareness and screening programs. Gynecological cancers also contributed significantly to the female burden of disease, underscoring the need for routine screening and early detection strategies tailored for women. Age emerged as a major determinant, with

cancer being more prevalent in middle-aged and elderly populations, reinforcing the role of age-targeted preventive measures and health education.

Lifestyle-related risk factors were prominent, especially smoking and alcohol consumption among males, indicating a strong need for public health interventions that promote lifestyle modifications. Awareness campaigns and behavioral counseling can play a vital role in reducing the incidence of preventable cancers. In contrast, females reported fewer modifiable risk factors, with age itself being the predominant risk factor, suggesting different preventive approaches are required across genders.

The presence of comorbidities in nearly half of the study population further complicates cancer management. Hypertension and diabetes mellitus were the most common coexisting conditions, often occurring together. These findings emphasize the importance of integrated care models that address both cancer and chronic illnesses, as comorbidities can significantly affect treatment choices, tolerance to chemotherapy, and long term prognosis.

Chemotherapy patterns revealed that carboplatin, paclitaxel, and trastuzumab were the most commonly used agents, reflecting standard treatment practices for prevalent cancers in the study population. This highlights the need for availability and accessibility of a wide range of chemotherapeutic drugs to ensure individualized treatment.

Quality-of-life assessments using the EORTC QLQ-C30 showed that while cognitive functioning was relatively preserved, physical and social functioning were significantly compromised. Fatigue and pain were the most burdensome symptoms, and nearly one-fourth of patients received no pain medication, underscoring a critical gap in supportive care. Effective pain management should be prioritized as a core component of cancer care to enhance patient well-being. Interestingly, females and patients with a family history of cancer reported better overall quality of life, suggesting that awareness, coping mechanisms, and social support may positively influence outcomes.

In conclusion, this study underscores the need for a multidisciplinary approach to cancer care that integrates early detection, lifestyle modification, comorbidity management, and supportive measures such as effective pain control. By addressing these diverse aspects, healthcare providers can significantly improve not only survival but also the overall quality of life of cancer patients.

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