Society of Medical Education & Research

2023, Volume 3, Issue 1, Page No: 29-34

Archive of International Journal of Cancer and Allied Science

Assessment of Quality of Life among Lung Cancer Patients in Pakistan Utilizing the EORTC QLQ-C13 Tool

Madeeha Malik[1*], Nida Nadeem[2], Qudsia Rafique[3], Azhar Hussain[4], Ayisha Hashmi[1]

[1] Cyntax Health Projects, Contract Research Organization, Islamabad, Pakistan.
[2] Medical Centre, COMSATS University, Islamabad Campus, Islamabad, Pakistan.
[3] Hamdard Institute of Pharmaceutical Sciences, Hamdard University Islamabad, Pakistan.
[4] Pak-Austria Fachhochschule: Institute of Applied Sciences and Technology, Haripur, Pakistan.

***E-mail** ✉ madeeamalik19@gmail.com

Abstract

Lung cancer remains one of the leading causes of cancer-related deaths globally. In low-resource nations like Pakistan, multiple barriers such as the lack of routine early detection programs, limited access to therapeutic interventions, financial constraints, insufficient medical infrastructure, and social taboos surrounding the illness collectively intensify the impact of the disease. This study aimed to assess the quality of life of people diagnosed with lung cancer in the context of Pakistan. A descriptive and cross-sectional approach was adopted, using the EORTC QLQ-C13 as a self-reporting instrument. A total of 100 participants were recruited through a convenience sampling approach. Upon completion of the survey, data underwent cleaning, coding, and statistical analysis using SPSS software. Significant variations in quality of life metrics ($P \geq 0.05$) emerged across different demographic categories, particularly gender, age, education level, and economic status. Notably, females, individuals under the age of 65 years, and patients from economically disadvantaged groups reported lower quality of life scores. Other demographic characteristics did not show statistically significant differences ($P \geq 0.05$). The findings indicated that despite the available knowledge and modern treatment modalities, lung cancer continues to adversely affect the quality of life in various dimensions. Among all symptom domains, pain was the most frequently reported, whereas hemoptysis registered the lowest prevalence. This study emphasizes the need for targeted symptom management, pulmonary rehabilitation programs, and robust psychosocial support systems to help improve the overall quality of life in lung cancer patients in Pakistan.

Keywords: Pakistan, Lung cancer, EORTC QLQ-C13, Quality of life

Introduction

Lung cancer stands among the top contributors to global cancer mortality, accounting for approximately 12.3% of all newly diagnosed malignancies, making it the second most prevalent cancer worldwide. The majority of lung cancer cases, nearly two-thirds, are diagnosed in individuals over the age of 65 years, with the average age at detection nearing 70 years. Known for its aggressive nature, lung cancer presents one of the lowest survival outcomes among all cancers, with five-year survival rates of only 12.6% in Europe and 18% in the United States [1]. Therapeutic interventions such as surgery, chemotherapy, and radiotherapy, although central to treatment, often lead to a decline in the overall well-being and quality of life (QoL) of patients. Psychological disturbances frequently accompany physical symptoms, and the presence of comorbid conditions further intensifies disease impact and deteriorates QoL [2].

Advancements in therapeutic approaches have increasingly prioritized not only clinical outcomes but also the psychosocial health and symptom relief of patients. Incorporating QoL evaluation has become essential in personalizing cancer care. A variety of validated measurement tools have been introduced to assess patient-centered outcomes and have shown strong

Access this article online

Website: https://smerpub.com/ **E-ISSN: 3108-4834**

Received: 26 February 2023; **Revised:** 17 May 2023; **Accepted:** 21 May 2023

How to cite this article: Malik M, Nadeem N, Rafique Q, Hussain A, Hashmi A. Assessment of Quality of Life among Lung Cancer Patients in Pakistan Utilizing the EORTC QLQ-C13 Tool. Arch Int J Cancer Allied Sci. 2023;3(1):29-34. https://doi.org/10.51847/3soY7U984A

correlations with performance status, symptom severity, and patient survival [3, 4]. Improvements in symptom domains such as fatigue, pain, and respiratory difficulty have been found to significantly uplift patients' QoL. Symptoms most commonly impacting lung cancer patients include dyspnea, fatigue, chronic coughing, chest discomfort, anorexia, insomnia, diarrhea, and breathlessness, all of which collectively impair daily functioning [5]. Psychological disorders like anxiety and depression are especially prevalent in those with advanced stages and are strongly linked to reduced QoL [6]. Fatigue, in particular, has been identified as one of the most debilitating consequences of treatment. Research by Nowicki *et al.* [7] noted that 70% of patients considered weakness the most burdensome side effect of their oncological therapies. Additionally, chronic tiredness severely disrupts sleep cycles, contributing to insomnia and overall distress [8].

Pulmonary performance has shown a moderate connection with quality of life among long-term survivors, indicating its potential value in refining post-operative treatment strategies for lung cancer [9]. In the U.S., a study revealed a negative association between depression, stigma, and the quality of life in lung cancer patients [10]. In Norway, depression was found to be the strongest determinant of low QoL among individuals with lung cancer [6].

In Pakistan, lung cancer ranks as the third most common malignancy and is the leading cause of cancer-related deaths. As of 2012, approximately 6,800 new cases (4.6%) and 6,013 deaths (5.9%) were reported. However, due to the absence of a national cancer registry, exact incidence and prevalence remain uncertain, limiting public awareness and hindering the implementation of effective early detection strategies [11]. In addition to systemic challenges such as poor access to medical care, low financial capacity, absence of early diagnostic programs, and social stigma, many patients in Pakistan face advanced disease stages upon presentation, often compounded by older age and coexisting illnesses. These factors severely impact treatment outcomes and contribute to a high burden of symptoms, depression, and significantly reduced quality of life [12]. Given the limited research on the quality of life of lung cancer patients in developing regions like Pakistan, this study was conducted to evaluate QoL outcomes in this specific patient population.

Materials and Methods

This investigation employed a descriptive cross-sectional methodology. Data collection was carried out across various public and private healthcare institutions within the twin cities of Pakistan. Before initiating the research, ethical clearance was granted by the Ethical Review Committee of Hamdard University under reference number HUIC/ERC/2020/359. Participation in the study required written informed consent from all respondents, accompanied by assurances of confidentiality and the responsible handling of personal data strictly for academic purposes.

Eligibility criteria allowed the participation of male and female patients over the age of 18 years who had been diagnosed with lung cancer at any disease stage. Patients diagnosed with any form of cancer other than lung cancer were excluded from the study. To estimate the required sample size, the Raosoft calculator was utilized, indicating a target of 382 participants based on a 95% confidence level and a 5% margin of error. Nevertheless, a non-probability convenience sampling strategy was adopted, whereby every available eligible patient encountered during the study period was included.

Data collection was facilitated through a self-administered, previously validated instrument—the European Organization for Research and Treatment of Cancer's quality of life assessment tool, EORTC QLQ-C13—specifically designed to evaluate QoL in lung cancer patients. Before the primary data collection, a pilot test involving 10% of the intended sample size was conducted, yielding a Cronbach's alpha of 0.79, confirming acceptable reliability. Data were gathered over four months from February to May 2021. Due to the limitations imposed by the COVID-19 pandemic, the intended sample size could not be attained, and ultimately, responses from 100 lung cancer patients were collected, reflecting a response rate of 26.18%. After collection, the data were cleaned and coded before being processed using SPSS version 21 for statistical evaluation.

Results and Discussion

Among the 100 individuals diagnosed with lung cancer, males constituted a larger proportion at 72% (n = 72), while females accounted for 28% (n = 28). A majority, 81% (n = 81), were younger than 65 years, whereas 8% (n = 8) were older than 65. In terms of education, 51% (n = 51) had received either no formal education or only primary schooling, 18% (n = 18) had completed middle

school, and 31% (n = 31) held academic qualifications. Regarding cancer type, non-small cell lung cancer (NSCLC) was present in 83% (n = 83), small cell lung cancer (SCLC) in 4% (n = 4), adenocarcinoma in 7% (n = 7), and 6% (n = 6) were diagnosed with combined adenocarcinoma. When categorized by cancer stage, 11% (n = 11) were identified with stage 2, 22% (n = 22) with stage 3, and a significant 67% (n = 67) were in stage 4. Concerning treatment modalities, chemotherapy alone was administered to 82% (n = 82), radiotherapy alone to 2% (n = 2), while 16% (n = 16) received a combined regimen of chemotherapy and radiotherapy. Additionally, metastasis was noted in 18% (n = 18), and 6% (n = 6) of the patients experienced disease recurrence (**Table 1**).

Table 1. Demographic characteristics of respondents

Indicator		Patient N (%)
Gender	Male	72 (72.0)
	Female	28 (28.0)
Age	Less than 65 years	81 (81.0)
	65-74 years	11 (11.0)
	Equal to or greater than 75 years	8 (8.0)
Service of provision	In-patient	83 (83.0)
	Out-patient	17 (17.0)
Marital status	Single	6 (6.0)
	Married	81 (81.0)
	Widow/divorced	13 (13.0)
Education level	Illiterate/primary	51 (51.0)
	Secondary school	18 (18.0)
	Higher education	31 (31.0)
Income status	> 100,000PKR	28 (28.0)
	50,000-100,000PKR	47 (47.0)
	< 50,000PKR	25 (25.0)
Smoking	Yes	66 (66.0)
	No	34 (34.0)
Recurrence	Yes	6 (6.0)
	No	94 (94.0)
Metastasis	Yes	18 (18.0)
	No	82 (82.0)
Knowledge about diagnosis	Yes	71 (71.0)
	No	29 (29.0)
Histological types	NSCLC	83 (83.0)
	SCLC	4 (4.0)
	Adenocarcinoma	7 (7.0)
	Adenocarcinoma combined	6 (6.0)
Staging	I	0 (0.0)
	II	11 (11.0)
	III	22 (22.0)
	IV	67 (67.0)
Therapy	Chemotherapy (monotherapy)	82 (82.0)
	Radiotherapy (monotherapy)	2 (2.0)
	Combination of chemotherapy and radiotherapy	16 (16.0)
	Combination of chemotherapy, radiotherapy, and surgical resection	0
	Surgical resection	0

The findings revealed that within the symptom scale of the QoL domain, hemoptysis registered the lowest mean score at 14.72 (± 22.06), indicating it had the least reported impact among the assessed symptoms. In contrast, arm or shoulder pain emerged as the most prominent complaint, showing the highest mean score of 53.04 (± 39.199), with pain in other regions of the body ranking just below. A comprehensive breakdown of these values is provided in **Table 2**.

Table 2. Domains of HRQOL using EORTC QLQ-LC13

Indicators	Mean	Standard deviation (±)
Cough	46.30	27.948
Hemoptysis	14.72	22.058
Dyspnea	37.41	25.095
Sore mouth	25.91	28.799
Trouble swallowing	27.15	30.504
Neuropathy	21.57	29.118
Alopecia	47.57	28.823
Chest pain	50.00	34.817
Arm or shoulder pain	53.04	39.199
Other parts pain	50.61	40.875

Analysis of the QoL scores demonstrated a statistically significant variation ($P \geq 0.05$) based on gender, age category, educational attainment, and socioeconomic status. Notably, reduced QoL was predominantly seen in female patients, individuals under 65 years of age, and those from lower socioeconomic groups. However, no meaningful differences ($P \geq 0.05$) were detected concerning the remaining demographic parameters (**Table 3**).

Table 3. QoL among lung cancer patients according to different demographic characteristics

Demographics	EORTC QLQ-LC13 symptom scale			
	N	Mean rank	Test stats	P-value
Gender	Male = 72	23.79	163.000[a]	0.009
	Female = 28	36.31		
Age group ranges (years)	< 65 = 81	23.95	11.873[a]	0.001
	65-75 = 11	45.14		
	> 75 = 8	34.75		
Level of education	Primary = 51	34.43	10.735[b]	0.003
	Secondary school = 18	22.50		
	Higher education = 31	19.44		
Monthly income (PKR)	> 100,000 = 28	22.78	12.047	0.002
	50000-100000 = 47	23.33		
	< 50000 PKR = 25	40.04		
Histological type	NSCLC = 83	25.69	4.770[b]	0.183
	SCLC = 4	29.25		
	Adenocarcinoma = 7	36.38		
	Combined = 6	8.75		
Stages of cancer	II = 11	206.3	18.4[b]	0.001
	III = 22	155.1		
	IV = 67	219.2		
Knowledge about diagnosis	Yes = 71	25.97	233.000[b]	0.253
	No = 29	31.47		

Smoking	Yes = 66	25.33	256.500[a]	0.173
	No = 34	31.50		
Therapy	Chemotherapy = 82	27.96	0.673[b]	0.933
	Radiotherapy = 2	22.50		
	Combination of radio and chemotherapy = 16	24.21		
Metastasis	Yes = 18	31.45	0.716[a]	0.324
	No = 82	25.58		
Recurrence	Yes = 6	40.88	46.500[a]	0.078
	No = 94	26.43		

[a]Mann Whitney; [b]Kruskal-Wallis test ($P \geq 0.05$)

Lung cancer ranks among the most prevalent malignancies worldwide, significantly contributing to rising rates of illness and death. The burden of lengthy, high-cost treatments often exposes patients to multifaceted hardships—including psychological, physical, financial, and social challenges—that adversely influence disease outcomes [13]. Assessing QoL in individuals with lung cancer is essential, as it empowers both clinicians and patients to make informed decisions regarding therapy, ultimately enhancing patient health trajectories. QoL has become a vital metric in evaluating cancer prognosis and is closely associated with survival expectancy in lung cancer patients [1].

According to the EORTC QLQ LC13 outcomes in this investigation, nearly half of the participants reported considerable difficulty with breathing while engaging in activities such as walking and climbing stairs, experienced persistent coughing, and noted noticeable hair loss. Conversely, only a small fraction reported minor issues with hemoptysis. Around 50% of the patients did not report any problems with mouth soreness or swallowing difficulties, and a majority were free from symptoms like tingling in the extremities. Mild chest, arm, or shoulder pain was frequently reported, and general body pain was a common complaint among these patients. A large proportion were taking medications that provided only limited relief. Dyspnea and various forms of pain were identified as predominant symptoms in most cases. These observations are consistent with findings from a study conducted in Germany and France using the lung cancer symptoms scale, which also identified shortness of breath and pain as major QoL-reducing factors for lung cancer patients [14].

Furthermore, the current research underscored that female patients, those aged between 65 and 75 years, and individuals from economically disadvantaged backgrounds displayed more severe symptoms on the EORTC QLQ LC13 scale. In contrast, patients under the age of 65 years generally reported a more favorable QoL and demonstrated higher functional capabilities. These trends mirror the results of a study conducted in China, which found that women experienced more pronounced symptoms such as fatigue, breathlessness, and pain compared to men. Additionally, older patients and those with lower socioeconomic status exhibited worse symptom profiles than their younger and more financially stable counterparts [3].

Limitations

The scope of this study is restricted primarily to the twin cities of Pakistan and a few other cities, which limits the ability to generalize the findings to other regions of the country. Additionally, the research was conducted during the COVID-19 pandemic, a period during which many hospitals restricted interactions with external parties, resulting in a smaller sample size. Furthermore, no significant correlations were found between quality of life, depression, and various demographic factors. This lack of association does not necessarily imply that socio-demographic factors do not influence the quality of life; rather, it could be due to the relatively small sample size, which may have hindered the detection of moderate effects due to insufficient statistical power.

Conclusion

This study revealed that lung cancer patients suffer from a significantly reduced quality of life, despite the availability of advanced treatment options and increased awareness. The disease adversely impacted the quality of life across all assessed domains, with pain being the most severe symptom, while hemoptysis was the least troubling. Female patients and those within the 65-75 years age group experienced a greater decline in their quality of life. Additionally, low educational levels, advanced cancer stages, and limited socioeconomic

resources were found to worsen symptom severity. A comprehensive approach involving pulmonary rehabilitation and social support is crucial in improving the quality of life for these patients. Furthermore, prioritizing modified palliative care treatments is essential for enhancing the well-being of individuals suffering from lung cancer.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: Ethical approval was granted by the Hamdard University Ethical Review Committee (Ref. No. HUIC/ERC/2020/359).

References

1. Polanski J, Jankowska-Polanska B, Rosinczuk J, Chabowski M, Szymanska-Chabowska A. Quality of life of patients with lung cancer. Onco Targets Ther. 2016;9:1023-8.
2. Xu LI, Yan WA, Shufang LI, Shizhen XI, Jiancun CA. Effect of Chemotherapy on the Quality of Life of Lung Cancer Patients. Chin J Lung Cancer. 2013;16(12):656-60.
3. Liao YC. Quality of life and related factors in patients with newly diagnosed advanced lung cancer: a longitudinal study. Oncol Nurs Forum. 2014;41(2):E44-55.
4. Bahari N, Payandeh M, Tarlan M, Izadi N. Survival of Kurdish patients with lung cancer and some related factors. Clin Cancer Investig J. 2020;9(6):258-63. doi:10.4103/ccij.ccij_76_20
5. Wang B, Hao N, Zhang X. Factors influencing the psychology and quality of life in lung cancer patients. Saudi Med J. 2017;38(9):948.
6. Grotmol KS, Lie HC, Hjermstad MJ, Aass N, Currow D, Kaasa S, et al. Depression—a major contributor to poor quality of life in patients with advanced cancer. J Pain Symptom Manag. 2017;54(6):889-97.
7. Nowicki A, Krzymińska J, Kowalewski J. Ocena jakości życia chorych leczonych operacyjnie z powodu raka płuca. Contemp Oncol (Pozn). 2006;10(9):468-74.
8. John LD. Self-care strategies are used by patients with lung cancer to promote quality of life. Oncol Nurs Forum. 2010;37(3):339-47.
9. Sterzi S, Cesario A, Cusumano G, Corbo G, Lococo F, Biasotti B, et al. How best to assess the quality of life in long-term survivors after surgery for NSCLC? Comparison between clinical predictors and questionnaire scores. Clin Lung Cancer. 2013;14(1):78-87.
10. Brown Johnson CG, Brodsky JL, Cataldo JK. Lung cancer stigma, anxiety, depression, and quality of life. J Psychosoc Oncol. 2014;32(1):59-73.
11. Chagani P, Parpio Y, Gul R, Jabbar AA. Quality of life and its determinants in adult cancer patients undergoing chemotherapy treatment in Pakistan. Asia-Pac J Oncol Nurs. 2017;4(2):140-6.
12. Luqman M, Javed MM, Daud S, Raheem N, Ahmad J, Khan AU. Risk factors for lung cancer in the Pakistani population. Asian Pac J Cancer Prev. 2014;15(7):3035-9.
13. Salvo N, Hadi S, Napolskikh J, Goh P, Sinclair E, Chow E. Quality of life measurement in cancer patients receiving palliative radiotherapy for symptomatic lung cancer: a literature review. Curr Oncol. 2009;16(2):16-28.
14. Iyer S, Taylor-Stokes G, Roughley A. Symptom burden and quality of life in advanced non-small cell lung cancer patients in France and Germany. Lung Cancer. 2013;81(2):288-93.