

Depression, anxiety, quality of life, and its relationship with some demographic characteristics of patients with lung neoplasm candidate for surgery

Nasrin Masaeli¹, Gholamreza Kheirabadi², Setayesh Sindarreh³, Hamid Talebzadeh¹, Atefeh Ebrahimzadeh¹, Mohammad Reza Maraci⁴

¹Anesthesiology and Critical Care Research Center, Isfahan University of Medical Sciences, Isfahan, Iran, ²Behavioral Sciences Research Center, Isfahan University of Medical Sciences, Isfahan, Iran, ³Cancer Prevention Research Center, Isfahan University of Medical Sciences, Isfahan, Iran, ⁴Department of Epidemiology and Biostatistics, Health School, Isfahan University of Medical Sciences, Isfahan, Iran

Background: In this study, we decided to investigate the state of depression, anxiety, and quality of life and its relationship with some demographic characteristics of lung neoplasm patients who were candidates for surgery. **Materials and Methods:** In a cross-sectional study, all patients with lung neoplasm who were referred to medical centers affiliated to Isfahan University of Medical Sciences and were candidate for lung surgery in 2020–2021. Based on the inclusion and exclusion criteria, 52 people were assigned to the study consecutively. Then, the patients completed the demographic information questionnaire, the Hospital Anxiety and Depression Scale, and the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (QLQ-C30) (EORTC QLQ-C30). **Results:** The score of depression and anxiety was normal (range 7-0) and the score of quality of life was in the relatively good range (50–175). As the patient's age increases ($P = 0.014$) and the duration of the disease increases ($P = 0.041$), the level of depression increases significantly. People with higher education had lower depression ($P = 0.001$) and anxiety ($P = 0.003$). People living in the city had a significantly better quality of life ($P = 0.039$). The higher the depression ($P < 0.0001$) and anxiety ($P = 0.037$) of the people, the lower the quality of life of the patients. **Conclusion:** As anxiety and depression increase, the quality of life of lung neoplasm patients decreases. Some demographic characteristics such as old age, insufficient education, rurality, and increased duration of the disease can be the risk factors for depression, anxiety, and reduced quality of life of patients with lung neoplasm.

Key words: Anxiety, depression, lung neoplasm, quality of life

How to cite this article: Masaeli N, Kheirabadi G, Sindarreh S, Talebzadeh H, Ebrahimzadeh A, Maraci MR. Depression, anxiety, quality of life, and its relationship with some demographic characteristics of patients with lung neoplasm candidate for surgery. J Res Med Sci 2024;29:44.

INTRODUCTION

Lung cancer represents a type of disease characterized by the uncontrolled growth of cells in the lung tissues.^[1] A cancer diagnosis has significant effects on the physical, social, psychological, and spiritual dimensions of affected people.^[2] Mental problems such as depression, anxiety, and stress are more common in chronic medical conditions such as cancer.^[3] A study in Malaysia showed that lower levels of anxiety and

depression were associated with better quality of life in women with breast cancer.^[4] Research results showed that with the increase in the duration of the disease, the average scores of depression and anxiety increased and with the increase of anxiety and depression, the quality of life decreased.^[5] Since lung cancer is known as the most lethal cancer in the world and like other types of cancer was accompanied by physical and psychological problems, so we decided to study the state of depression, anxiety, and quality of life and its relationship with some

Access this article online

Quick Response Code:



Website:

<https://journals.lww.com/jrms>

DOI:

10.4103/jrms.jrms_309_23

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Address for correspondence: Dr. Hamid Talebzadeh, Anesthesiology and Critical Care Research Center, Isfahan University of Medical Sciences, Isfahan 8174675731, Iran.

E-mail: talebzadeh.h@med.mui.ac.ir

Submitted: 17-May-2023; **Revised:** 24-Jan-2024; **Accepted:** 12-Feb-2024; **Published:** 30-Jul-2024

demographic characteristics in this group of patients. Thus, the study examined those who are candidates for surgery.

METHODS

The present study was descriptive correlational research in 2020–2021. The research community sent the lung neoplasm-affected patients to medical centers covered by the Isfahan University of Medical Sciences for follow-up and surgical treatments. Entry criteria were including diagnosis of lung neoplasm based on the tissue sample, having consent to participate in the study, not having chronic diseases based on the history and patient file, being literate, not suffering from major psychiatric problems based on the history, the patient being a candidate for lung surgery of Stage I and Stage II lung cancer.

European Organization for Research and Treatment of Cancer QL-C30

The questionnaire includes 30 questions in five functional areas, nine symptom areas, and one overall area that measures the quality of life. The quality-of-life data are divided into three categories: Good (score above 75), relatively good (75–50), and poor (below 50).^[6] In the functional areas and the general area of quality of life, a higher score indicates a better condition, and in the area of symptoms, a higher score indicates more of the problem. This questionnaire is reliable and valid.^[7]

Hospital Anxiety and Depression Scale

The Anxiety and Depression Hospital Scale has 14 questions in two anxiety and depression subscales and the scores of the subscales are in the range of 0–21. For each subscale, the scores are 0–7 as normal, 8–10 as mild, 11–14 as moderate, and 15–21 as severe. Cronbach's alpha for depression and anxiety is between 0.80 and 0.90.^[8] First, the necessary coordination with the centers was carried out and 52 people with various types of lung neoplasm were selected consecutively to comply with the ethical principles of the purpose of conducting the study, how to complete the questionnaires, and other ethical issues were explained to them (IR.MUI.MED.REC 1399.484).

Statistical analysis

Data were entered into SPSS version 23.0 statistical software (SPSS Inc., Chicago, IL, USA) and descriptive statistics, including mean, standard deviation (SD), and frequency were used to describe the results. The variables were compared between the groups using *t*-test and ANOVA for the parametric variables and Mann–Whitney *U*-test and Kruskal–Wallis test for nonparametric variables. Furthermore, the Chi-square and Fisher exact tests were used for the categorical variables. Furthermore, Spearman correlation test was used for correlation test between the variables.

RESULTS

Fifty-two patients with lung neoplasm participated in the study and Table 1 shows the demographic characteristics of the studied population. The mean $\pm$ SD of age and duration of the disease of the patients was 55.33 ± 14.82 years and 126.92 ± 55.69 days, respectively. In terms of depression, 59.61% of people had normal depression, the amount of 23.07% had mild depression, 13.46% had moderate depression, and 3.84% had severe depression. In addition, 65.38% had normal anxiety, 26.92% had mild anxiety, and 5.76% had moderate anxiety. The mean scores of depression, anxiety, and quality of life are presented in Table 2. Furthermore, Table 3 shows the relationship between demographic characteristics and quality of life in general, depression, and anxiety of patients. The results of the Spearman correlation coefficient indicate that with increasing the duration of the disease, the rate of depression increases significantly ($P = 0.041$, $r = 0.25$). However, the patient's anxiety was positively correlated with increasing the duration of the disease but was not statistically significant ($P = 0.08$, $r = 0.24$). In addition, quality of life decreased with increasing disease duration but was not statistically significant ($P = 0.24$, $r = -0.16$). The results of examining the relationship between the quality of life of patients with depression and anxiety showed that the quality of life of patients with lung neoplasm is inversely and significantly related to their depression and anxiety scores, and as depression and

Table 1: Demographic characteristics of the studied patients

	<i>n</i> (%)
Gender	
Female	23 (42.2)
Male	29 (55.8)
Education	
Primary	9 (17.3)
Diploma	21 (40.4)
Academics	22 (42.3)
Marital status	
Single	11 (21.2)
Married	39 (75)
Divorced	2 (3.8)
Job	
Studying	3 (5.8)
Employed	20 (38.5)
Unemployed	10 (19.2)
Homemaker	19 (36.5)
Place of residence	
Urban	36 (69.2)
Rural	16 (30.8)
Age, mean $\pm$ SD (minimum–maximum)	55.33 $\pm$ 14.82 (19–81)
Duration of the disease (days), mean $\pm$ SD (minimum–maximum)	126.92 $\pm$ 55.69 (30–360)

SD=Standard deviation

Table 2: Mean score of depression, anxiety, and quality of life in patients with lung cancer

	Mean±SD
HADS	
Depression	7.59±2.9
Anxiety	6.56±2.17
Quality of life in general*	
General health and quality of life in general	50.64±15.98
Functional areas*	
Role performance	79.8±19.34
Cognitive function	71.47±22.22
Physical function	67.05±17.43
Emotional function	33.65±26.40
Social performance	31.73±27.06
Financial problems	65.38±20.22
Areas of symptoms**	
Constipation	61.90±20.16
Shortness of breath	59.61±33.22
Fatigue	57.90±25.87
Insomnia	53.84±36.84
Pain	53.20±31.49
Anorexia	24.35±26.40
Nausea and vomiting	8.01±13.8
Diarrhea	2.56±8.96

*The higher the score, the better the situation; **The higher the score the worse the situation. SD=Standard deviation; HADS=Hospital Anxiety and Depression Scale

anxiety increase in people, the quality of life of patients decreases significantly.

DISCUSSION

The mean scores of depression and anxiety of patients with lung cancer in this study were in the normal range. Sadouqi *et al.* reported that the anxiety and depression of female patients with breast cancer were higher than normal^[9] and Aghakhani *et al.* reported the high levels of anxiety and depression in patients with colorectal cancer.^[10] These inconsistencies may be related to the type of studied cancer, the duration of cancer diagnosis, and the measuring tools used of anxiety and depression. Contrary to our expectations, the mean score of the quality of life was in a relatively normal range that is consistent to Aghakhani *et al.* study.^[10] Chagani *et al.* in Pakistan also reported similar results.^[11] This may be related to more support and care of the families in terms of the physical and mental health of these people after being diagnosed with cancer. In the current study, there was a significant and direct correlation between the duration of cancer diagnosis with severity of depression score, but a nonsignificant and indirect correlation with quality-of-life score, which is consistent with the findings

Table 3: Relationship between demographic characteristics and quality of life, depression, and anxiety in lung cancer patients

	Quality of life		Depression		Anxiety	
	Mean±SD	P	Mean±SD	P	Mean±SD	P
Gender						
Female	47.82±14.69	0.386*	8.08±3.3	0.353*	6.82±2.28	0.449 [^]
Man	52.87±16.85		7.2±2.65		6.56±2.17	
Age (years)						
Under 40	49.07±14.09	0.176 [§]	6.66±3.24	0.014 [§]	7±2.5	0.421 [§]
40–49	53.7±17.23		5.88±2.36		5.77±1.98	
50–59	56.94±18.4		6.58±1.67		5.83±1.74	
60–69	41.66±11.18		9.27±3.13		7.45±2.73	
70 and older	51.51±16.16		9.18±2.89		6.81±1.73	
Marital status						
Single	45.45±10.11	0.411 [§]	9.18±3.68	0.160 [§]	7.4±1.71	0.155 [§]
Married	52.56±16.9		7.1±2.61		6.38±2.17	
Divorced	41.66±23.57		8.5±3.53		8±1.41	
Education						
Primary school	53.7±24.33	0.103 [§]	8.77±2.99	0.001 [§]	7.88±1.61	0.003 [§]
Diploma	44.84±11.92		8.85±2.86		7.04±1.77	
University	54.92±14.23		5.9±2.2		5.52±2.33	
Occupation						
Unemployed	44.44±12.72	0.103 [§]	7.33±4.5	0.001 [§]	7.66±3.51	0.355 [§]
Studying	57.08±17.37		6.6±2.58		6±1.91	
Employed	48.33±14.05		7.6±2.31		6.22±1.98	
Housewife	46.05±14.53		8.68±3.23		7.15±2.26	
Settlement						
Urban	53.47±15.34	0.039*	7.19±3.06	0.056*	6.22±2.07	0.116 [^]
Rural	44.27±16.02		8.5±2.55		7.31±2.27	

*Mann–Whitney U-test; [^]t-test; [§]ANOVA; [§]Kruskal–Wallis. SD=Standard deviation

of a study conducted in Turkey.^[5] Denial as the first defense mechanism against bad news or undesirable crisis in human being protects people from early onset of depression and anxiety and preserves the quality of life, with the passing of the time of cancer diagnosis and the ineffectiveness of this mechanism, the level of anxiety and depression of the afflicted patients increase and the quality of life decreased accordingly. There was a significant and indirect correlation between the level of education with depression and anxiety score of lung cancer patients in this study which is consistent with the results of other studies.^[12,13] It may be related to the ability of people with a higher level of literacy in faced with problems such as a cancer diagnosis that they can study about their problem and treatment methods and this helps them to more acceptance and adaptation to the illness and protect them against depression and anxiety. As a frequent finding in community-based studies on general populations, increasing of the age is a risk factor for increasing of depression, living in a village is accompanied with lower quality of life, and anxiety and depression is a determinant factor of disturbed quality of life^[13] In consistent with previous study, we found that age of participant had a direct and significant correlation with depression score,^[14] living in a city versus living in a village showed a significant high score of quality of life in lung cancer patients^[14] and anxiety and depression score had an indirect correlation with the quality of life score.^[5,10,15]

Limitations

The main limitation on this study is small sample size, not doing interview for clinical diagnosis, not having a control group and limited tools of mental state evaluation.

CONCLUSION

With the increase of anxiety and depression, the quality of life of patients with lung cancer decreases and some demographic characteristics such as age, low education, rurality, and the duration of the disease can be the risk factors for the possibility of depression, anxiety, and decreasing the quality of life of affected people with lung cancer.

Acknowledgments

We would like to appreciate all the people who contributed to this study.

Financial support and sponsorship

This study was financially supported by the Isfahan University of Medical Sciences, Isfahan, Iran (199589).

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Dustkafi H, Heidari H, Davoodi H, Zare Bahram Abadi M. Comparing the effectiveness of group counseling by gestalt therapy & positive psychology on mental well-being in lung cancer woman. *Med J Mashhad Univ Med Sci* 2020;62:1898-907.
2. Kavak Budak F, Özdemir A, Gültekin A, Ayhan MO, Kavak M. The effect of religious belief on depression and hopelessness in advanced cancer patients. *J Relig Health* 2021;60:2745-55.
3. Rao WW, Yang MJ, Cao BN, You YY, Zhang YY, Liu YY, *et al.* Psychological distress in cancer patients in a large Chinese cross-sectional study. *Journal of Affective Disorders* 2019;245:950.
4. Ng CG, Mohamed S, See MH, Harun F, Dahlui M, Sulaiman AH, *et al.* Anxiety, depression, perceived social support and quality of life in Malaysian breast cancer patients: A 1-year prospective study. *Health Qual Life Outcomes* 2015;13:205.
5. Bektas DK, Demir S. Anxiety, depression levels and quality of life in patients with gastrointestinal cancer in Turkey. *Asian Pac J Cancer Prev* 2016;17:723-31.
6. Mehrabi F, Hekmatpour D, Abolfathi A. The relationship between demographic characteristics and quality of life in patients with cancer. *Health Res J* 2019;5:8-15.
7. Safaee A, Dehkordi Moghimi B, Tabatabaie SH. Reliability and validity of the QLQ-C30 questionnaire in cancer patients. *Armaghane danesh* 2007;12:79-88.
8. Haji Ahmadi Foumani H, Abad SE, Kakavand AR. Efficacy of dialectical behavior therapy on perceived stress, self-efficacy and quality of life in women with breast cancer. *J Appl Psychol* 2014;8:2008-4321.
9. Sadoughi M, Mehrzad V, Mohammad Salehi Z. The relationship between anxiety, depression, and quality of life among breast cancer patients in Seyedoshohada hospital in Isfahan in 2016: The mediating role of resilience. *J Rafsanjan Univ Med Sci* 2017;16:395-408.
10. Aghakhani N, Hazrati Marangaloo A, Vahabzadeh D, Tayyar F. The effect of Roy's adaptation model-based care plan on the severity of depression, anxiety, and stress in hospitalized patients with colorectal cancer. *Hayat, J Sch Nurs Midwifery Tehran Univ Med Sci* 2019;25:208-19.
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;4:140-6.
12. Heidarirad F, Yarahmadi M, Heidarirad H, Shafiei M. Evaluation of the prevalence of depression and related factors among women with breast cancer were referred to the radiotherapy center of Towhid hospital of Sanandaj, Iran. *Sci J Nurs Midwifery Paramed Fac* 2018;4:39-49.
13. Dragioti E, Radua J, Solmi M, Arango C, Oliver D, Cortese S, *et al.* Global population attributable fraction of potentially modifiable risk factors for mental disorders: A meta-umbrella systematic review. *Mol Psychiatry* 2022;27:3510-9.
14. Tian J, Chen ZC, Wu B, Meng X. Comparison of quality of life between Urban and rural gastric cancer patients and analysis of influencing factors. *World J Gastroenterol* 2004;10:2940-3.
15. Baniyasi F, Borjali A, Poursharifi H, Mofid B. Quality of life and its relationship with stress, anxiety, and depression in people with prostate cancer: A cross-sectional study. *J Prevent Med.* 2021; 8.