www.gjhsr.org

Global Journal of Health Science and Research

Original Article

Prevalence of anxiety and depression among cancer patients attending tertiary care hospital in Puducherry – A cross-sectional study

Pooja Krishnan[1], R. Sindhuri[2], Reenaa Mohan[1], M. Reveda[1], Roghan Balaji[1]

[1]Department of Community Medicine, Sri Manakula Vinayagar Medical College and Hospital, Puducherry, [2]Department of Community Medicine, PSP Medical College Hospital and Research Institute, Oragadam, Kanchipuram, Tamil Nadu, India.

***Corresponding author:**
Reenaa Mohan,
Department of Community Medicine, Sri Manakula Vinayagar Medical College and Hospital, Kalitheerthalkuppam, Madagadipet, Puducherry, India.

reenaamohan1406@gmail.com

Received: 26 March 2024
Accepted: 15 April 2024
EPub Ahead of Print: 20 July 2024
Published: 26 August 2024

DOI
10.25259/GJHSR_13_2024

Quick Response Code:

ABSTRACT

Objectives: Palliative care interventions for cancer patients are usually more effective when they provide them with cues for using the knowledge related to their disease, which helps them adjust and live through the different phases of the illness. The objective of the study is to find the prevalence of anxiety and depression among cancer patients and to assess their quality of life (QOL).

Material and Methods: Hospital-based cross-sectional study was conducted among 226 oncology patients attending tertiary care hospitals. After obtaining consent, one-to-one interviews were conducted with cancer patients using a standard questionnaire. Depression anxiety stress scale 21 scale and World Health Organization Quality of Life Brief Version (WHOQOL-BREF) scale were used. Ethical principles were adhered throughout the study. Data were analyzed using the Statistical Package for the Social Sciences software.

Results: Out of 226 cancer patients, majority of them 151 (66.8%) were in the age group of 30–59 years and 148 (66.5%) were female. It was found that 62 (27.4%) had stress, 178 (78.8%) had anxiety and 154 (68.1%) were in depression. The mean raw score in overall QOL is 3.27 ± 0.94 standard deviation (SD) and in general health is 3.46 ± 0.81) (SD). Marital status ($P = 0.001$) and duration since the diagnosis of cancer ($P = 0.005$) had significant association with the environmental domain of the QOL of patients.

Conclusion: This study emphasizes the need for palliative care for psychosocial support to cancer patient to improve their QOL. Comprehensive management for cancer patients by providing family support and a patient-friendly environment is needed.

Keywords: Palliative care, Cancer patients, Depression anxiety stress scale 21

INTRODUCTION

Cancer overall affects the body as well as the mind. It is the second most leading cause of death in the world. A diagnosis of cancer begins a long journey that can affect physical health, mental well-being, and relationships with loved ones.[1] In addition to coping with the worry and stress brought about by their diagnosis, patients with cancer and their families must cope with the stresses induced by intensive treatments for the illness and the permanent health impairment and disability, fatigue, and pain that can result, even when there are no longer any signs of the disease. These effects contribute to emotional distress and mental health problems among cancer

patients.[2] Most commonly presenting psychiatric conditions are depression, anxiety (panic disorder, post-traumatic stress disorder, and phobias), adjustment disorder, and delirium. Depression is a comorbid disabling syndrome that affects approximately 15–25% of cancer patients.[3]

According to the American psychological association, psycho-oncology refers to the study of psychological, behavioral, and psychosocial factors involved in the risk, detection, course, treatment, and outcome (in terms of survival) of cancer. The field examines responses to cancer on the part of patients, families, and caregivers at all stages of the disease.[4] A very minimum people have knowledge on psychiatric conditions and seek necessary medical attention for it. Often the symptoms may remain overlapped, where even medical professionals find it difficult to diagnose it. It was believed that one-third of the people diagnosed with cancer were having depression.[5-7] The fear begins from the question of survival, intensive treatments, economic instability, bodily disfigurements, physical limitations, fear of losing jobs, and being burden to the family, it persists even after the treatment and present as fear of recurrence. Some may even show somatic symptoms.[8,9] Not every patient was counseled after their diagnosis or treatment. The efficacy of the several forms of specialized psychotherapeutic interventions and psychosocial rehabilitation, especially if in the form of collaborative care, indicates a general benefit in reducing the severity of psychiatric symptoms, as well as somatic symptoms (e.g., pain) and in improving quality of life (QOL), well-being, and return to work and illness behavior. The interventions with the most empirical support for treating distress in cancer patients include supportive-expressive group psychotherapy, cognitive-behavioral and cognitive-existential therapy, and meaning centered psychotherapy.[5]

Medical knowledge enhances the sense of control and mastery a person has over his or her disease, and educational interventions generally yield positive outcomes. Interventions for medical patients are usually more effective when they provide patients with cues for using the knowledge related to their disease and daily management or with some emotion focused components, which helps them to adjust and live through the different phases of the illness.[10,11]

This study mainly focuses on the outpatients and in patients of oncology ward and captures the level of anxiety and depression among them using depression anxiety stress scale 21 (DASS-21) and their QOL using the World Health Organization (WHO) QOL BREF. The primary objective of the study is to find prevalence of anxiety and depression among the cancer patients and secondary objective is to assess the QOL and its association with sociodemographic variables.

MATERIAL AND METHODS

Study area and settings

The present hospital-based analytical cross-sectional study was conducted in the in patients and out patients of the Department of Radio-oncology and outpatient of Department of Psychiatry in SMVMCH, Puducherry. The study was conducted for period of 6 months. The diagnosed cancer patient more than 18 years of age attending both in and out patients and willing to take part in the study were included in the study.

Sample size and sampling

It was calculated to be 226 using OpenEpi software version 3.0 into consideration the 25% prevalence of depression according to National Cancer Institute,[3] with 5% absolute precision and 95% confidence interval and 5% non-response rate. Consecutive sampling was applied.

Tools used for data collection

DASS-21 is the short form of the DASS-42;[10] WHO QOL-BREF is 26 items instrument consisting of four domains: Physical health (7 items), psychological health (6 items), social relationships (3 items), and environmental health (8 items).[12]

Data collection procedure

After obtaining Institutional Ethical Clearance, data were collected by trained principal investigator using a pre-designed structured questionnaire to assess the participant's level of anxiety, depression, and quality of life. DASS-21 was used for anxiety and depression assessment under the guidance of expertise WHO QOL-BREF was used for QOL assessment. Patients were interviewed at the bedside during their stay as an inpatient in the ward and also outpatient. The sociodemographic details, marital details, type of cancer and its stage, treatment modality, substance use, and family history of psychiatric illness were also obtained from the patient. The patient was also assessed about knowledge on psychiatric counseling.

Ethical issues

Institutional Research and Ethics Committee clearance was obtained. Ethical principles such as respect for the persons, beneficence, justice, and ensuring confidentiality were adhered to, throughout the study. Informed written consent was obtained from all participants.

RESULTS

It was found out of 226 cancer patients, majority of them 151 (66.8%) were in the age group of 30–59 years and

148 (66.5%) were female. Most of the participants were educated at least up to high school level and nearly half of them were not employed at present. About three-fourth of the participants belonged to class IV socioeconomic status. Majority of the participants belonged to Hindu religion and were married. Of 226, 35 (15.5%) did not have any other comorbidities and had no addictions.

From Figure 1, it was found among 226 cancer patients, 62 (27.4%) had stress, 178 (78.8%) had anxiety, and 154 (68.1%) were in depression. Among 62 cancer patients who were in stress, majority, 41.9% had mild stress and of 178 cancer patients who had anxiety, 87 (48.9%) had moderate anxiety. Out of 154 patients in depression, about half of them were in mild depression and 13 (8.4%) had very severe depression [Table 1].

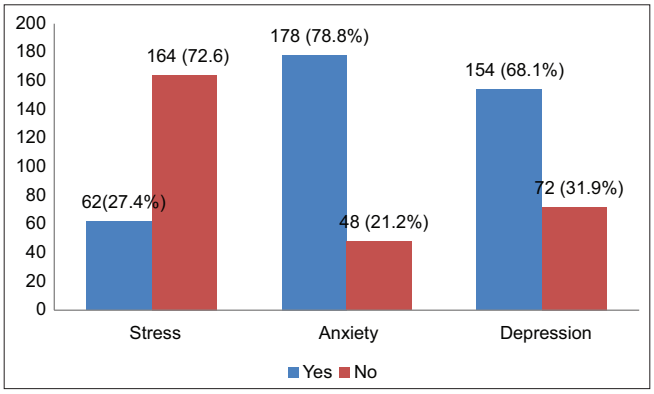

Figure 1: Prevalence of stress, anxiety, and depression among cancer patients.

Table 1: Levels of stress, anxiety, and depression among cancer patients (*n*=226).

Levels	Stress *n*=62	Anxiety *n*=178	Depression *n*=154
Mild	26 (41.9)	38 (21.3)	78 (50.6)
Moderate	17 (27.4)	87 (48.9)	57 (37.0)
Severe	13 (21.0)	22 (12.4)	6 (3.9)
Extremely severe	6 (9.7)	31 (17.4)	13 (8.4)

From Table 2, it was found. The mean raw score in overall QOL is 3.27 ± 0.94 standard deviation (SD) and in general health is 3.46 ± 0.81) (SD). Out of all the domains, environmental domain had highest score in QOL, particularly in items related to freedom, safety and security, and transport.

The mean QOL was higher for environmental and social domains, whereas it was lowest in physical domain. There was statistically significant difference in the QOL perceived by the cancer patients in various domains ($P < 0.001$). Out of 226 participants, 22.6%, 26.1%, 47.8%, and 76.1% of them had good QOL in physical, psychological, social, and environmental domains, respectively. There was statistically significant difference between good and poor QOL of cancer patients in various domains ($P < 0.001$) [Table 3].

It was found among cancer patients, except their marital status, none of the variables were statistically associated with overall QOL of patients ($P = 0.01$). Marital status ($P = 0.001$) and duration since the diagnosis of cancer ($P = 0.005$) had significant association with environmental domain of the QOL of patients [Table 4].

DISCUSSION

In the present study, the prevalence of anxiety and depression among cancer patients was found to be 78.8% and 68.1%. The mean QOL was higher for the environmental and social domains, whereas it was lowest in the physical domain which clearly states stigma rendered by society making them negligent and unwanted, due to cancer plays a key role in influencing their confidence pushing them to depression. Gonzalez-Saenz de Tejada *et al.* study shows, the location of cancer, divorced or widowed, and non-functionally independent cancer patients are more prone for anxiety and depression, while higher baseline scores, higher social support, and improvements in physical functioning, cognitive functioning, and social functioning were associated with improvements in anxiety and depression.[13] In this study, the low physical domain is due to physical impairment and bodily disfigurement after surgery and need for assistance in daily activities. Kumar *et al.* study states poor outcomes after operations that do not focus on aesthetic correction and QOL could be another reason for psychological distress.[14] Study shows alterations in appearance, and problems with speech, chewing, and swallowing affect social function and QOL and also lead to depression.[14] The present study shows that there are high environmental and social domains, which is attributed to good family support, freedom, and safety of the patient and nearby hospital facilities. Among cancer patients, marital status was statistically associated with overall QOL of patients ($P = 0.01$). This study also states that people with low income, low educational background, and lesser knowledge about the disease and its treatment have more anxiety and depression. There is low QOL after 2 years of diagnosis of cancer (55.2 ± 7.2) among the study population. Gender plays an important role, based on study by Linden *et al.*, females diagnosed with cancer are more prone for depression.[15] This study had maximum number of breast cancer patients, those who underwent mastectomy showed high level of depression. Studies shows that loss of job and income, anxiolytics and antidepressants, cancer-related neuropathic pain, and mastectomy were associated with higher odds of anxiety and/or depression.[16] Studies by Pinquart and Duberstein show that depression leads to

Table 2: Assessment of QOL of cancer patients using WHO QOL-BREF questionnaire.

WHO QOL-BREF items/domains	Total mean raw item score	Standard deviation
Q1 overall QOL	3.27	0.94
Q2 General health	3.46	0.81
Domain 1: Physical health		
Q3 physical pain and discomfort	2.49	0.89
Q4 dependence on medical substances and medical aids	2.48	0.77
Q10 energy and fatigue	3.38	0.99
Q15 mobility	3.28	0.96
Q16 sleep and rest	3.23	1.06
Q17 activities of daily living	3.30	0.93
Q18 work capacity	3.12	0.86
Domain 2: Psychological health		
Q5 life enjoyment	3.21	0.91
Q6 meaningfulness of life	3.51	0.73
Q7 thinking, learning, memory, and concentration	3.39	0.76
Q11 bodily image and appearance	3.38	0.84
Q19 self-esteem	3.13	0.83
Q26 negative feelings	2.33	0.83
Domain 3: Social relationships		
Q20 personal relationship	3.77	0.89
Q21 sexual activity	3.02	0.95
Q22 social support	3.50	0.95
Domain 4: Environment		
Q8 freedom, safety, and security	4.01	0.77
Q9 physical environment	3.57	0.91
Q12 financial resources	3.01	0.92
Q13 opportunities for acquiring new information and skills	3.72	0.85
Q14 recreation/leisure	3.14	0.90
Q23 home environment	3.55	0.88
Q24 accessibility and quality to health and social care	3.71	0.72
Q25 transport	4.04	0.78

WHO QOL-BREF: World Health Organization Quality of Life Brief Version, QOL: Quality of life

Table 3: QOL scores in different domains among cancer patients.

Domains	Mean QOL scores±SD	Minimum-maximum values	QOL score (<60)-poor QOL *n* (%)	QOL score (≥60)-good QOL *n* (%)
Physical	51.23±10.39	19–75	175 (77.4)	51 (22.6)
Psychological	54.19±9.09	19–75	167 (73.9)	59 (26.1)
Social	60.85±14.29	25–94	118 (52.2)	108 (47.8)
Environmental	66.53±10.05	31–94	54 (23.9)	172 (76.1)
P-value	<0.001 (Based on ANOVA)		<0.001 (based on Chi-square test)	

P-value<0.05 is significant. SD: Standard deviation, QOL: Quality of life, ANOVA: Analysis of variance

a poorer QOL and compromises patient outcomes, with depression resulting in higher rates of mortality in cancer.[17]

Age group plays an important role in psychological involvement, this study shows people between 30 and 60 years are more prone for depression and anxiety. Jacob *et al*. study on 29 366 women initially diagnosed with breast cancer or genital organ cancer, women in the age groups of 41–50, 51–60, and 61–70 years were at a higher risk of depression/anxiety than women in the age group of 71–80 years (odds ratios equal to 1.50, 1.38, and 1.22).[18] The prevalence of depression and anxiety also involves the treatment plan. Most of the patient in this study were undergoing chemotherapy and more incidence of depression and anxiety are seen among the patient suffering from the adverse effect of chemotherapy. Study shows wide range of side effects (e.g., nausea, vomiting, constipation, anemia, hair

Table 4: Association between sociodemographic variables and WHO-QOL BREF domains.

Variables	Overall QOL	Domain 1	Domain 2	Domain 3	Domain 4
Age					
<60 years	58.1±7.5	51.6±10.7	54.3±9.2	60.6±14.4	66.1±10.6
>60 years	58.4±6.2	50.2±9.6	53.9±8.8	61.6±13.9	67.7±8.2
P-value	0.85	0.38	0.77	0.64	0.23
Gender					
Male	58.4±7.1	50.7±10.8	53.5±9.9	61.9±14.1	67.4±10.2
Female	58.1±7.2	51.5±10.2	54.5±8.7	60.3±14.4	66.1±9.9
P-value	0.78	0.58	0.44	0.41	0.36
Education					
Illiterate	56.6±7.7	49.2±8.6	50.9±8.9	58.9±15.5	67.5±9.9
School level	57.9±7.4	51.3±10.7	53.9±9.2	60.7±14.6	65.5±10.0
Degree	59.3±6.3	51.7±10.2	55.8±8.8	61.6±13.4	68.1±10.1
P-value	0.23	0.63	0.08	0.74	0.19
Occupation					
Unemployed/retired	58.2±7.0	51.2±10.2	55.2±8.8	60.3±13.9	66.1±9.6
Daily wage laborer/maid	57.7±4.7	52.8±7.9	53.3±7.2	58.8±12.5	66.0±7.9
Self-employed own shop/small business	56.9±8.4	47.8±12.0	54.2±10.5	61.2±15.9	64.8±9.7
Employee-Govt/private	59.0±7.7	52.4±10.7	52.6±9.7	62.7±14.9	68.5±11.8
P-value	0.64	0.22	0.34	0.65	0.35
Socioeconomic status					
Class II and III	58.4±6.8	51.8±10.2	53.7±9.7	60.9±14.9	67.1±10.2
Class IV	58.1±7.3	51.1±10.5	54.4±8.9	60.8±14.1	663±10.0
P-value	0.83	0.64	0.63	0.95	0.63
Religion					
Hindu	58.3±7.2	51.4±10.6	54.4±9.0	60.5±1.2	66.7±9.9
Christian	58.7±8.9	53.2±9.7	53.1±9.6	62.6±11.7	66.3±8.6
Muslim and others	56.8±7.8	46.2±6.7	52.3±9.7	63.4±17.9	65.4±13.0
P-value	0.72	0.14	0.60	0.68	0.89
Marital status					
Married	58.6±7.2	51.4±10.5	54.4±9.2	61.9±13.6	66.8±10.2
Others	54.9±5.7	50.3±9.7	52.6±8.6	52.5±16.4	64.5±8.9
P-value	**0.01***	0.62	0.33	**0.001***	0.26
Duration since diagnosis of cancer (in years)					
Less than 1 year	58.1±6.6	51.0±10.3	55.4±8.6	59.9±12.6	65.9±9.8
1–2 years	58.6±7.5	51.4±10.6	53.6±9.3	62.5±14.4	66.7±10.3
More than 2 years	55.2±7.2	50.7±9.8	52.1±10.3	48.9±18.3	69.0±8.9
P-value	0.29	0.96	0.28	**0.005***	0.61

*$P<0.05$ is significant (Based on independent sample *t*-test and one-way ANOVA) highlighted in bold. WHO-QOL BREF: World Health Organization Quality of Life Brief Version, QOL: Quality of life, ANOVA: Analysis of variance

loss, or even secondary neoplasm) induced by chemotherapy may further deteriorate the emotional, cognitive and social functions of cancer patients, and consequently lead to the occurrence of mental disorders.[19]

As this study focuses on QOL, the physical factors causing depression and anxiety are insomnia, nausea, fatigue, and reduced appetite, while the other factor includes financial difficulties, loss of job, less family support, and divorce. Studies shows that the two important factors that related to major depressive disease were insomnia and financial difficulties among cancer patient.[20] The treatment of depressive and anxious cancer patient involves psychoanalysis and pharmacotherapy. Studies show that patient may likely to benefit from psychoeducation, cognitive behavioral therapy, problem-solving therapy, and acceptance and commitment therapy. Pharmacotherapy involves prescribing strong analgesics for pain, benzodiazepine for anxiety, and Selective serotonin reuptake inhibitors (SSRI) and Tricyclic antidepressants (TCA) for depression.[21] Clinical guidelines for physician might help in early diagnosis of depression and providing comprehensive management. The National Comprehensive Cancer Network from United States has established specific tool for the routine assessment of psychosocial morbidity and an algorithm for the management of psychological disorders (e.g., adjustment

disorders, depression, suicide and suicide risk, and cognitive disorders) in cancer patients.[22]

It is hospital-based cross-sectional study that temporarily cannot be maintained. Smaller sample size hence the findings cannot be generalized.

CONCLUSION

Depression and anxiety remain underdiagnosed among the cancer patient. This study emphasizes the need for combined oncologist and psychiatrist workup for depression and anxiety patients for necessary psychological interventions to improve healing effects. All the patients have to be linked to palliative care for psychosocial support and comprehensive management for cancer patients by providing patient patient-friendly environment and developing guidelines for counseling.

Ethical approval

The research/study approved by the Institutional Review Board at SMVMCH Ethics Committee, number EC/16, dated February 3, 2022.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

Dr. Reenaa Mohan is on the Editorial Board of the Journal.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

REFERENCES

1. Emotional and psychosocial effects of cancer. CancerQuest. Available from: https://www.cancerquest.org/patients/psychosocial-problems [Last accessed on 2022 Jun 02].
2. Adler NE, Page AE, Institute of Medicine (US) Committee on Psychosocial Services to Cancer Patients/Families in a Community Setting. Psychosocial health services. In: Cancer care for the whole patient: Meeting psychosocial health needs. Washington, DC: National Academies Press (US); 2008.
3. Depression (PDQ®)-health professional version. National Cancer Institute; 2022. Available from: https://www.cancer.gov/aboutcancer/coping/feelings/depression-hp-pdq 12 [Last accessed on 2022 Jun 02].
4. Available from: https://dictionary.apa.org/psychooncology [Last accessed on 2022 Jun 02].
5. Caruso R, Breitbart W. Mental health care in oncology. Contemporary perspective on the psychosocial burden of cancer and evidence-based interventions. Epidemiol Psychiatr Sci 2020;29:e86.
6. Gade R, Ramavath BS, Puchhakayala G, Chiluka M. Assessment of psychiatric infirmities in cancer patients by using DASS21 in a tertiary care hospital. J Evol Med Dent Sci 2019;8:2153-7.
7. Liu P, Wang Z. Postoperative anxiety and depression in surgical gastric cancer patients: Their longitudinal change, risk factors, and correlation with survival. Medicine (Baltimore) 2022;101:e28765.
8. Niedzwiedz CL, Knifton L, Robb KA, Katikireddi SV, Smith DJ. Depression and anxiety among people living with and beyond cancer: A growing clinical and research priority. BMC Cancer 2019;19:943.
9. Carroll BT, Kathol RG, Noyes R Jr., Wald TG, Clamon GH. Screening for depression and anxiety in cancer patients using the Hospital Anxiety and Depression Scale. Gen Hosp Psychiatry 1993;15:69-74.
10. Geetha M. A study on the prevalence of depression and anxiety and its association with quality of life in patients with head and neck cancer. Chennai: Madras Medical College; 2017.
11. Depression anxiety stress scales - short form (DASS-21). NovoPsych; 2021. Available from: https://novopsych.com.au/assessments/depression/depression-anxiety-stress-scalesshort-form-dass-21 [Last accessed on 2022 Jun 02].
12. Vahedi S. World health organization quality-of-Life scale (WHOQOL-BREF): Analyses of their Item Response Theory properties based on the graded responses model. Iran J Psychiatry 2010 Fall;5:140-53.
13. Gonzalez-Saenz de Tejada M, Bilbao A, Baré M, Briones E, Sarasqueta C, Quintana JM, *et al*. Association between social support, functional status, and change in health-related quality of life and changes in anxiety and depression in colorectal cancer patients. Psychooncology 2017;26:1263-9.
14. Kumar K, Kumar S, Mehrotra D, Tiwari SC, Kumar V, Khandpur S, *et al*. Prospective evaluation of psychological burden in patients with oral cancer. Br J Oral Maxillofac Surg 2018;56:918-24.
15. Linden W, Vodermaier A, MacKenzie R, Greig D. Anxiety and depression after cancer diagnosis: Prevalence rates by cancer type, gender, and age. J Affect Disord 2012;141:343-51.
16. Lopes C, Lopes-Conceição L, Fontes F, Ferreira A, Pereira S, Lunet N, *et al*. Prevalence and persistence of anxiety and depression over five years since breast cancer diagnosis-the NEON-BC prospective study. Curr Oncol 2022;29:2141-53.
17. Pinquart M, Duberstein P. Depression and cancer mortality: A meta-analysis. Psychol Med 2010;40:1797-810.
18. Jacob L, Kalder M, Kostev K. Incidence of depression and anxiety among women newly diagnosed with breast or genital organ cancer in Germany. Psychooncology

2017;26:1535-40.
19. Cheng MJ, Smith BD, Hourigan CS, Gojo I, Pratz KW, Blackford AL, *et al*. A single center survey of health-related quality of life among acute myeloid leukemia survivors in first complete remission. J Palliat Med 2017;20:1267-73.
20. Priscilla D, Hamidin A, Azhar MZ, Noorjan KO, Salmiah MS, Bahariah K. Assessment of depression and anxiety in haematological cancer patients and their relationship with quality of life. East Asian Arch Psychiatry 2011;21:108-14.
21. Smith HR. Depression in cancer patients: Pathogenesis, implications and treatment. Oncol Lett 2015;9:1509-14.
22. Wood DE. National Comprehensive Cancer Network (NCCN) clinical practice guidelines for lung cancer screening. Thorac Surg Clin 2015;25:185-97.

How to cite this article: Krishnan P, Sindhuri R, Mohan R, Reveda M, Balaji R. Prevalence of anxiety and depression among cancer patients attending tertiary care hospital in Puducherry – A cross-sectional study. Glob J Health Sci Res. 2024;2:108-14. doi: 10.25259/GJHSR_13_2024