

Original Research Article

Psychological impact among cancer patients undergoing chemotherapy in Bundelkhand region, Central India

Sushil Gour^{1*}, Rajesh Kumar Maurya¹, Punya Pratap Singh²,
Vrashbhan Ahirwar², Mahendra Dhakar¹, Prashant Maravi³

¹Department of Oncology, ²Department of Radiology, Government B.M.C. Sagar, Madhya Pradesh, India

³Department of Psychiatry, SSMC Rewa, Madhya Pradesh, India

Received: 17 January 2021

Accepted: 04 February 2021

*Correspondence:

Dr. Sushil Gour,

E-mail: drsushil20@hotmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: A cancer diagnosis can have a significant impact on mental health and wellbeing. Cancer is the second most common cause of death after heart diseases and it accounted for 9.6 million deaths worldwide in 2018. Various individual psychosocial and contextual factors potentially contribute to the development of anxiety and depression among people with cancer. In comparison with general people, the prevalence of anxiety and depression is frequently found to be higher among cancer patient, but estimates vary due to various factors, such as the type of cancer, treatment setting, and prognosis of disease. The present study was conducted to find out the estimate of depression in cancer patients undergoing chemotherapy and determine the various factors associated with depression.

Methods: A cross-sectional study was conducted amongst cancer patients undergoing chemotherapy at Department of Oncology, Government Bundelkhand Medical College and Hospital, Sagar from January to April 2019. 150 participants were interviewed using predesigned questionnaire based on the Beck's depression inventory.

Results: Out of 150 cancer patients, 83 (55.3%) were found to be depressed. Depression was comparatively higher in patients' ≥ 50 years; in males. Among the study patients, 83 (55.33%) had depression of which 21 (25.3%) had borderline clinical depression, 54 (65.06%) had moderate depression and 08 (9.6%) had severe depression.

Conclusions: The study revealed depression in majority of patients receiving chemotherapy. Treatment of cancer patients need to be complemented by psychological support. Research is urgently needed into the possible impacts of long term effects of cancer treatment on mental health.

Keywords: Mental health, Chemotherapy, Cancer patients, Depression

INTRODUCTION

Cancer is a substantial group of diseases that can start in almost any tissue or organ of the body when abnormal cells grow uncontrollably, go beyond their normal boundaries to infiltrate adjoining parts of the body and/or spread to other distant organs.¹ Patients with cancer have a high rate of psychiatric co-morbidity; approximately one-half exhibit emotional difficulties. The psychological complications generally manifest in the form of anxiety,

adjustment disorder, depressed mood, loss of self-esteem or impoverished life satisfaction.^{2,3} Depression is the most common psychological disorder in cancer patients. Cancer treatment related depression is a pathological affective response to loss of normalcy and one's personal mind set as a result of cancer diagnosis, treatment, or imminent complications. The chemotherapy is a cyclic treatment with repetitive hospitalization and unlike surgery procedure has many complications like hair loss, nausea vomiting, loss of appetite and diarrhea. A long

course of treatment, repeated hospital admissions and the side-effects of chemotherapy along with the stigma of being diagnosed with cancer has a significant effect on the psyche of the cancer patients.⁴ The diagnosis of cancer itself is catastrophic for the patients and their relatives. Other than the symptoms arising due to the type of cancer, the cancer patients face many physiological side-effects such as nausea, vomiting, loss of appetite, pain; some social side-effects such as social isolation, role and function loss and psychological problems such as loss of interest, stress, anxiety, depression; and eventually worsened quality of life.^{5,6} Anxiety due to cancer diagnosis can also lead to sleep disturbance, mood swing which may increase the risk of depression. Several psychological factors are playing an important role in development of depression in cancer patients. A variety of factors related to the cancer and its treatment are likely to impact on the development of depression and anxiety, including the type of cancer, stage of cancer and its prognosis. A major factor is the presence of pre-existing mental health illness, its duration and severity.

The patient with no previous psychiatric history, a mere diagnosis of cancer is associated with heightened risk of common psychiatric health problems, which may adversely affect treatment of cancer and its prognosis.⁷ The individual psychological response to a cancer diagnosis is also an important component, the experience of being diagnosed, particularly if the diagnosis has been delayed, can be a significant source of distress and can impact on illness acceptance.⁸ Cancer treatments including immunotherapy and chemotherapy may induce depression through several biological mechanisms, such as inflammatory pathways, use of steroids and some drugs used to treat chemotherapy-induced vomiting can reduce dopaminergic transmission, which is implicated in the development of depressive symptoms.⁹

Depression in cancer patients can interfere with treatment and recovery and may subsequently increase their morbidity and mortality.¹⁰ Recognition of depression and determining the appropriate level of intervention, ranging from brief counseling and support groups to medication and psychotherapy is an important aspect of cancer care, which unfortunately is missing in most palliative care settings.¹¹

The purpose of this article is to argue that more research is needed into the preventive care and treatment of comorbid anxiety and depression among people with cancer and highlight it as a growing clinical and policy priority. Individual risk factors that may increase the risk of depression, similar to the general population, include demographic factors, such as age, gender, and socio-economical factors such as lower educational status and unemployment.

The objectives of the present study were to determine the magnitude of depression and its associated factors among cancer patients attending the radiation oncology, in

Bundelkhand Medical College and Hospital Sagar, M.P, India.

METHODS

A cross-sectional descriptive study was conducted at the Department of Radiation Oncology, during January and April 2019 in Govt. Bundelkhand medical college, Sagar, M.P. India. The study population includes all cancer patients who were coming to receive chemotherapy in oncology department.

Inclusion criteria

Cancer patients above 20 years of age.

Exclusion criteria

Very sick patients and who were unable to communicate with us. Patients who refused to give written consent.

Permission was obtained from Institutional Ethics Committee for the study and informed written consent of patients was taken before interviewing them. Secrecy and confidentiality were ensured throughout the study. The Beck's Depression Inventory based questionnaire was used to collect data by interview technique. The interviews were carried out while the patients were waiting in chemotherapy ward for their chemotherapy. General information regarding socio-demographic data such as age, gender, residence, religion, marital status, occupation, monthly income, level of education was noted.

Beck's depression inventory

The Beck depression inventory (BDI) is a self-report rating inventory containing 21 items that measures symptoms, attitudes and characteristic of depression.¹² BDI is self-rated scale that evaluates key symptoms of depression including mood, indecisiveness, self-dissatisfaction, self-accusation, sense of failure, guilt, punishment, self-dislike, suicidal ideas, crying, irritability, social withdrawal, body image change, pessimism, insomnia, fatigability, weight loss, loss of appetite, work difficulty, somatic preoccupation, and loss of libido. According to Beck et al. the Centre for Cognitive Therapy has led the following guidelines for BDI cut-off scores, to be used with affective disorder patients: scores from 0 through 9 indicate no or minimal clinical depression; scores from 10 through 18 indicate mild to moderate depression; scores from 19 through 29 indicate moderate to severe depression; and scores from 30 through 63 suggest severe depression. By counting the number to the left of each question marked, the score for each of the 21 questions is calculated. The highest total for the whole test is 63. And the lowest possible score for the test is 0. The level of depression is evaluated according to Table 1.

Data entry was done in Microsoft Excel version 2007. Descriptive statistics such as mean, standard deviation, range were used to summarise baseline characteristics of the study patients.

RESULTS

In the study 150 patients undergoing chemotherapy were enrolled. The demographic variables of the study patients are shown in Table 2. The age of study patients varied between 22-75 years, the mean age being 53.4 years. In this study population 88 (58.66%) of the study subjects were males and 62 (41.34%) were females. Majority of them 137 (91.33%) were Hindu by religion, and majority 126 (84%) were married. Most of them were of low education levels, 38(25.33%) were illiterate and did not receive any formal education. Majority of the study patients 103(68.66 %) belonged to lower socio-economic class had <10000 rupees family income.

Table 1: Scoring of Beck's depression inventory.

Total score	Levels of depression
0-9	These ups and downs are considered normal
10-18	Mild mood disturbance
19-29	Moderate depression
30-63	Severe depression

Table 2: Sociodemographic variables of depression among study patients.

Variables	Depression, N (%)^	Total N (%)
Age group (years)		
<30	11 (45.83)	24 (16)
30-60	58 (61.70)	94 (62.6)
≥60	14 (43.75)	32 (21.3)
Gender		
Male	59 (67.04)	88 (58.6)
Female	24 (38.70)	62 (41.3)
Religion		
Hindu	78 (56.93)	137 (91.33)
Others	5 (38.46)	13 (8.67)
Educational status		
None	27 (71.05)	38 (25.33%)
Up to primary	45 (71.42)	63 (42)
Secondary and above	11 (22.44)	49 (32.66)
Monthly family income (Rs.)		
<10000	45 (43.68)	103 (68.66)
≥10000	38 (80.85)	47 (31.33)
Physical activity status		
Sedentary	63 (60.57)	104 (69.33)
Moderate or heavy	20 (43.47)	46 (30.66)
Total	83 (55.33)	150 (100)

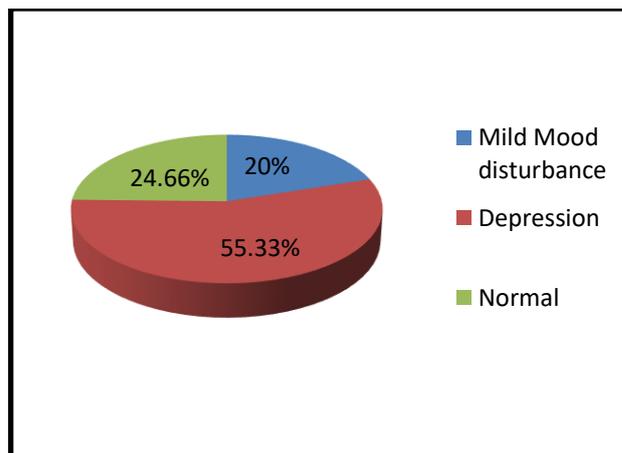


Figure 1: Percentage distribution of depression in study subject.

Figure 1 shows the depression in study subjects. Among the study patients, 37 (24.66%) had no depression, 30 (20%) had mild mood disturbance and majority 83 (55.33%) suffered from some form of depression.

Table 3: Distribution of study patients by levels of depression.

Levels of depression	Study patients	
	Number	Percentage
Mild clinical depression	21	25.30
Moderate depression	54	65.06
Severe depression	8	9.63
Total	83	100

Table 4: Treatment history variables of depression among study patients.

Variables	Depression, N (%)^	Total N (%)
Chemotherapy cycle		
<3	44 (53.65)	82 (54.66)
3-6	32 (55.17)	58 (38.66)
>6	7 (70.0)	10 (0.66)
Duration of chemotherapy (months)		
<2	27 (46.55)	58 (38.66)
2-4	39 (60.0)	65 (43.33)
>4	17 (62.96)	27 (18.0)
Any co-existent disease		
Yes	18 (62.06)	29 (19.33)
No	65 (53.71)	121 (80.6)
Total	83 (55.33)	150 (100)

Depression was highest among the patients with the age group of 50 years and above, in male cancer patients and those belonging to religions Hindu and had a sedentary lifestyle.

Table 3 shows the distribution of study patients by levels of depression. Among the study subjects, 83(55.33%) had depression of which 21 (25.30%) had mild clinical depression, 54 (65.06%) had moderate depression and 08 (9.6%) had severe depression.

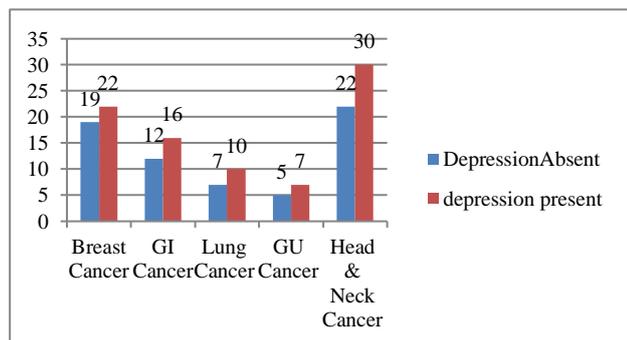


Figure 2: The presence of depression in different types of cancer.

Among the 150 study patients, 52 (34.6%) had head and neck cancer, 41 (27.3%) had breast cancer, 28 (18.6%) had gastrointestinal cancers and 17 (11.3%) had lung cancer. The proportion of depression was found to be highest among head and neck cancer (57.69%) patients, and lowest among breast cancer patients. The presence of depression in different cancer types is shown in Figure 2.

Nearly 53.65% of them had been receiving chemotherapy for <3 cycles and 60% of them had been receiving chemotherapy for 2-4 cycles and 62.06% had some co-existing disease before the day of the interview as shown in Table 4.

DISCUSSION

Anxiety and depression often goes undiagnosed and untreated among many cancer patients which may have a deleterious effect on not only the course of the disease and compliance but also affect the quality of life.¹³ Depression in cancer patients can interfere with treatment and recovery and may subsequently increase their morbidity and mortality.¹⁴ Cancer treatment related depression is a pathological affective response to loss of normalcy and one's personal world as a result of cancer diagnosis, treatment or impending complications. Similar to Grief, depression presents with symptoms of sadness, fearfulness feeling of panic and pining for lost objects.¹⁵ Depression is suspected when symptoms of sadness persist and are accompanied by increasing dysfunction, feeling of worthlessness, lowered self-esteem, suicidal preoccupation or inability to anticipate anything with pleasure.¹⁶ Many studies exhibit that depression tends to be highest during the early phase and decline following treatment but again this likely differs depending on the type of cancer, stage of cancer and prognosis. Cancer recurrence is a major problem and fear of recurrence is one of the most commonly reported issues and an important area of unmet need for cancer survivors.

In comparison with healthy individuals, the prevalence of anxiety and depression in cancer survivors was found more in review of various studies. The prevalence of anxiety and depression is often higher among people with cancer as compared to the general population, but estimates vary due to a number of factors, such as the type of cancer, treatment given and stage of cancer etc.

In the present study, the proportion of depression was found to be 55.3%, Shivani S. Vaida et al. estimates the depression in 95 cancer patients using same scale and the proportion of depression was approx 70%.¹⁷ While same proportion of depression (55.7%) was observed in a study Bhattacharyya et al. using the Brief Edinburgh Depression Scale (BEDS). The mean prevalence of depression using diagnostic interviews is around 13% and using all assessment methods it varies from approximately 5 to 70%.¹⁸ This wide variation is due to many factors including the type of cancer included and method used to screen for symptoms and the treatment setting.

The present study the patients more than 50 years were more likely to suffer from depression which was similar to the results as obtained by Polikandrioti et al.¹⁹ This may be explained by the fact that older patients have a many co morbid conditions which may contribute to the increased the presence of depression and anxiety. In accordance with the results obtained by Pandey et al.²⁰ males were found to more depressed than their female counterparts in this study.

The present study revealed that, among the study subjects 14% had mild clinical depression, 36% had moderate depression and 5.3% had severe depression. These findings were found to be similar with Yusuf et al and Jang et al.^{21, 22}

It should also be emphasized that the psychological impact of cancer treatment may not always be negative and many patients will not experience problems with anxiety and depression. Sometime experiencing short term distress and anxiety related to a cancer diagnosis and treatment may lead to positive psychological changes in the long duration whereby patients feel a higher appreciation of life and they are able to re-evaluate their priorities in life.

Patients with anxiety and depression often do not get psychological treatment or support. This is likely due to several factors, including identification of mental health symptoms, lack of awareness, stigma, an absence of support available or offered lack of evidence around effective treatments and patient preference.

CONCLUSION

The level of anxiety and depression among cancer patients undergoing chemotherapy in our institute was found to be on the higher side. The symptoms must first

be identified to effectively treat and manage anxiety and depression among patient with cancer. A key problem is the lack of physician time for assessing sign and symptoms. Screening for anxiety and depression among patients with cancer is also only of value if it leads to proper support and treatment that is able to improve patient outcomes. The available data for treating anxiety and depression among patients with cancer is limited and of varying quality. However, these studies demonstrate that psycho education, psychotherapy and relaxation training may have small to medium short-term effects on relieving emotional distress and reducing symptoms of anxiety and depression, as well as ameliorate quality of life related with mental health problems. In particular, we emphasise the lack of good-quality research work into the mental health of long-term cancer survivals and late effects of cancer treatment.

ACKNOWLEDGEMENTS

The authors are grateful to Dean and Superintendent, Government Bundelkhand Medical College and Hospital Sagar M.P. for their cooperation and providing necessary research facilities in the Department.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Defining Cancer". National Cancer Institute.
2. Sarafino E. Health Psychology: Bio Psychosocial Interactions. 2nd ed. New York: John Wiley and Sons. 1994.
3. Friedenbergs I, Kaplan E. Cancer. In: Eisenberg M, Glueckauf R, Zaretsky H, editors. Medical Aspects of Disability: A Handbook for the Rehabilitation Professional. New York: Springer. 1993;105.
4. McLean LM, Jones JM. A review of distress and its management in couples facing end-of-life cancer. *Psychooncol*. 2007;16:603-16.
5. Burgess C, Cornelius V, Love S, Graham J, Richards M, Ramirez A. Depression and anxiety in women with early breast cancer: Five year observational cohort study. *BMJ*. 2005;330:702-5.
6. Shapiro SL, Lopez AM, Schwart GE, Bootzin R, Fiqueredo AJ, Braden CJ, et al. Quality of life and breast cancer relationships to psychosocial variables. *J Clin Psychol*. 2001;57:501-19.
7. Zhu J, Fang F, Sjölander A, Fall K, Adami HO, Valdimarsdóttir U. First-onset mental disorders after cancer diagnosis and cancer-specific mortality: a nationwide cohort study. *Ann Oncol*. 2017;28(8):1964-9.
8. Ball H, Moore S, Leary A. A systematic literature review comparing the psychological care needs of patients with mesothelioma and advanced lung cancer. *Eur J Oncol Nurs*. 2016;25:62-7.
9. Smith HR. Depression in cancer patients: pathogenesis, implications and treatment (review). *Oncol Lett*. 2015;9(4):1509-14.
10. Katon WJ. Epidemiology and treatment of depression in patients with chronic medical illness. *Dialogues Clin Neurosci*. 2011;13:7-23.
11. Williams S, Dale J. The effectiveness of treatment for depression/ depressive symptoms in adults with cancer: A systematic review. *Br J Cancer*. 2006;94:372-90.
12. http://www.med.navy.mil/NMCP2/PatientServices/SleepClinicLab/Documents/Beck_Depression_Inventory.pdf. Last accessed on 01 November, 2020.
13. Walker J, Holm Hansen C, Martin P, Sawhney A, Thekkumpurath P, Beale C, et al. Prevalence of depression in adults with cancer: A systematic review. *Ann Oncol*. 2013;24:895-900.
14. Katon WJ. Epidemiology and treatment of depression in patients with chronic medical illness. *Dialogues Clin Neurosci*. 2011;13:7-23.
15. Haig RA. Management of depression in patients with advanced cancer. *Med J Aust*. 1992;156:499-503.
16. Anderson BL, Anderson B, de Prose. Controlled prospective longitudinal study of women with cancer II. Psychological outcomes. *J Consult Clin Psychol*. 1989;57:692-97.
17. Vaidya SS, Sharma SK. Depression in cancer patients undergoing chemotherapy in a tertiary care hospital: a cross-sectional study. *Int J Community Med Public Health*. 2019;6:3102-6.
18. Bhattacharyya S, Bhattacharjee S, Mandal T, Das DK. Depression in cancer patients undergoing chemotherapy in a tertiary care hospital of North Bengal, India. *Indian J Public Health*. 2017;61:14-18.
19. Polikandrioti M, Evaggelou E, Zerva S, Zerdila M, Koukoularis D, Kyritsi E. Evaluation of depression in patients undergoing chemotherapy. *Health Sci J*. 2008;2:162-72.
20. Pandey M, Sarita GP, Devi N, Thomas BC, Hussain BM, Krishna R. Distress, anxiety, and depression in cancer patients undergoing chemotherapy. *World J Surg Oncol*. 2006;4:68.
21. Yusof S, Zakaria FN, Hashim NK, Dasiman R. Depressive symptoms among cancer patients undergoing chemotherapy. *Procedia Soc Behav Sci*. 2016;34:185-92.
22. Jang S, Ackler J, Braitman L, Tester W. Depression and quality of life in cancer undergoing chemotherapy: relation between Zung self-rating depression scale and functional assessment of cancer therapy-general. *Commun Oncol*. 2012;9:122-6.

Cite this article as: Gour S, Maurya RK, Singh PP, Ahirwar V, Dhakar M, Maravi P. Psychological impact among cancer patients undergoing chemotherapy in Bundelkhand region, Central India. *Int J Res Med Sci* 2021;9:706-10.